Area Identification: LAKE SHORE EAST 10 D #Z
Date of Verification Survey: A PR. 11, 2003
Time of Verification Survey 10 Amam/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: Rhal 9. Byzeen
Date APR 11, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COURDINATUR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of Contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date April 15, 2003
Print Name FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Page 3 of 3

K:WYPDOCS/PROJECT/132193XAWYork Plan/SOP-223-verification survey.doc

Area Identification: LAKESHURE EAST 90/90 SE
· · · · · · · · · · · · · · · · · · ·
Date of Verification Survey: APR. 11, 2003
Time of Verification Survey 10:00 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
signed: Pld 9. Buggian
Date APR. 11 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COURDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 on
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date April 15, 2003
Print Name FREDRICK A. MICKE
Print Title ON - SCENE COURDINATOR
For USEPA Region 5 Fredrick a. Micke

Page 3 of 3

K:WPDOCS\PROJECT\132183XA\Work PlantSOP-223-verification survey.doc

Area Identification: Lakeshore East 90/90 NE
Date of Verification Survey: APR. 11, 2003
Time of Verification Survey 10:00 Am am/pm
The above-described excavation was surveyed at the time and date Indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: TM 9. Buzze
Date Apr. 11, Zoo3
Print Name RICHARD G BERGGREEN
Print Title PROJECT COURDINATUR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 on Optil 15, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 15, 2003</u>
Print Name FREDRICK A. MICKE
Print Title ON - SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Page 3 of 3

K-WPDOCS/PROJECT/132193XA/Work Plan/SOP-223-verification survey.doc

14:42

Nutrani Gemma Spec	Report-Lakeshore	Fast Project
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221 North Columbus Drive, Chicago, IL

Exelusi	on cone	COLEMENT	letory demples for April 11	, 2003								
temple	Sample	Semple'	Description	Weight	U-236	0498	Th-232	Th-252	Ra-225	Ra-520	Total Itadium	Total Radium
ID	Deta	Group	J		Activity	Uncertainty	Activity	Untertainty	Activity	Uncertainty	Adiivity	Uncertainty
764	4/11/03	EPA	S2550 BDAC NE EPAPI	28.7	1.54	3.4	1.53	0.9	0.08	1.26	4.01	1.548418548
765			82500 SDAC NE EPARZ	27.5	5.16	3.66	0.67	0.91	1.54	1.52	2.21	1.803277892
780	4/1/03	EPA	52661 SDAC NE EPAGS	27.4	3.07	2.52	4 0.97	0.65	5.44	0.64	1.47	1.148664321
787	4/11/03		92562 SDAC NE EPAR	27.2	0.83	7.82	4	0.63	1.48	3.0	2.47	1.09659000
788	4/11/03	JE A	52503 DD/DC NE EPAGS	28.1	-0.14	2.45	1.70	0.66	0,60	0.03	2.46	1.140304001
		the party of the party of	The state of the same of the s				*		2 (52		Alle	

Average Total Radium (Th-232+Re-226) Concentration for: QD/9C NE 2= 2.48 2.02 DCI/p

	_												
	Sam ple	Sample	Sample	Description	Welght	U-239	U-29t	Th-332	Th-862	Ro-484	Redak	Total Radium	Total Paulium
1	<u> D</u>	Date	Group	1	·	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
1	760	4/17/03		82864 SCAC SE EPART	25.0	2.40	2,50	2.61	0.71	1.17	0.96	3.0	1.210165278
_ /	790	4711/03		82885 BEAC OF EPAR	32.2	7.02	2.07	1.68	0.76	1.87	4 1.	3.0	1.348490826
7	701	471/08		82666 GLICC DE EPARS	32.8	1.02	2,17	0.05	0.67	3.70	0.84		1.015135454
- /	792		(EP)	82867 BOAC SE EPASA	30.7	4.4	3.50	0.60	5.96	3.1	1.42	4 3.70	1.714066504
- 1	799	4/11/03	EPA	82668 GDIGC SE EPASS	30.3	6.38	2.53	2.5	0.65	0.50	0.0	3.24	1.11010010

X= 3.67
Average Total Radium (Th-232+Ra-226) Concentration for ; QD/9C SE A=0.61 3.79 pCl/9

Sample	Sample	Bample	Description	Weight	U-239	U-200	Th-232	ThQM	Pa-228	Re-2M	Total Radium	Total Redium
ID	Date	Group	<u>-</u>		Anthrity	Uncertainty	Adevity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
794	4/17/03	EPA	82600 BOISC NW EPAST	25.5	-2.58	2.37	1,67	0.64	1.25	0.01		1.11251956
766	4/11/05	EPA	82570 90/9C NW EPAR	28.7	6,24	2.66	0.39	0.7	200	1.02	2.42	1.297003066
765	4/11/08	EPA	R2871 OD/OC NW EPANS	284	-0.76	1,93	2.46	0.62	291	0.72	2.45 LH	0.888144132
707	4/4 1/03	EPA	82672 SEVEC NAV EPASA	20.6	5,60	2.66	0.62	0.67	2.84	0.07	3.40	1,17850779
708	4/11/03	EPA	82873 SUAC NAVERAGE	25.7	-1,84	2.00	1.34	0,81	1,47	1.17	2.61	1.423024047

Average Total Radium (Th-232+Ra-226) Concentration for : QD/9C NW $_{\infty}$ = 0.43 2.64 pC/

Bemple	Dample	Beneple	Description	Weight	U-230	U-898	Th-232	These	Pin-220	N1-130	Total Radium	Total Radium
10	Date	Group		1 1	Activity	Ususcialaty	Activity	Uncertainty	Activity	Uncertainty	Activity	Unearising
790	4/11/03	EPA	82874 SDISC SW EPAP	21.6	0.93	3.74	1.26	1.04	D.66	1.44	1.91	1.776288285
800	4/11/09		82676 CONC BW EPAG2	24.4	4.55	3.34	0.04	0.86	4.81	1.31	3.36	
604	4711/03	EPA	82676 90/9C SW EPA/9	22.3	2.01	2.70	0.83	0.74	2.82	1,1	2.44	1.826746074
302	4/11/03		62577 00/90 SW EPAM	25.3	0.5	2.67	211	6.71		0.90	4.66	1.21027/472
603	4/11/03	EPA	82678 SDISC BW EPAIG	24.5	7.41	3.18	1.22	0.92	4.02	1.14	1.55	1.404279175

Average Total Radium (Th-232+Rs-226) Concentration for: $\frac{\sqrt{2}-2.64}{20.00}$ 2.64 pCl/g

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672	
25035	
י	
.03783	i

Sum plu	Sample	Semple	Description	Weight	U-228	A-599	Th-202	775-202	Ra-228	Ra-220	Total Radium	Tetni Redium
Ð	Date	Group		!	Activity	Uncertainty	Adlivity	Unowtainty	Activity	Uncortainty	Activity	Uncertainty
804	4/11/02		52570 10DM2 EPA#1	20.5	0.83	2.64	0.40	0.71	1.34	1.04	1.98	1.26124580
305	411/08		82680 10082 EPAR2	26.7	0.59	2.57			1.6	1.11	3.25	1.3624243
606	4/11/03		82681 10D#2 EPA#3	28.7	2.05	3,18	0.95	0.84	12	1.2	2.23	1.4647.6667
807	4/11/01		62582 100M2 EPAM	30.6	8.08	3.72	1	0.93	(0.07	1.25	1.00 013	1.50026289
808	4/1/00	EPA	82583 10D82 EPA#5	30.0	0.65	2.30	1.72				1.97	1.10208892
					. 4			Z = 7	.00			
Averag	e Total	Radium	1 (Th-232+Ra-226) Cor	rcentrati	ion for :		10D#2	$\hat{\beta} = \hat{\alpha}$		1.89	pCVg	

PAGE: 008 R=96%

41 10- 1

Area Identification:	LAKESHORE E	AST	11 C # /	
Date of Verification Survey:	Apr. 4	20	03	
Time of Verification Survey _	9 Am			am/pm
The above-described excava indicated that all soils have be	ation was surveyed at the en removed as required t	ne time a by the Site	nd date indicated Removal Action C	above. The survey
Documents pertaining to this			pproval by the US	SEPA.
Signed: PM 5.	Bezzran	<u> </u>		
Date A	en. 7, 20	703		
Print Name RICHAL	G. Ben	GGR.	ETEN .	
Print Title PROJECT	COORDINAT	OR		
STS Consultants, Ltd.				
The attached Verification April 16, 2023 contained in the UAO, have be	The results of this	were rev survey i	ewed by USE	PA, Region 5 on verification criteria as
Authorization is hereby grante		nd restorat	ion work at this ex	cavation.
Date <u>April 16, 20</u>				
Print Name FREDRIC	KA. MICK	ϵ		
Print Title ON - SCE	NE COORDIN	ATO	ξ	
For USEPA Region 5				

ι,

Area Identification: LAKESHORE EAST 11 C # 2
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: RLI S. Buggree
Date Apr. 7, 2003
Print Name RICHARD G. BERCCREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of Contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 2003</u>
Print Name_FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Area Identification: LAKESHORE LAST D
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 A M am/pm
The above-described excavation was surveyed at the time and date indicated above. The surveyed indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: PUS. Bugger
Date Apr. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of Contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 7003</u>
Print Name FREDRICK A. MICKE
Print Title ON- SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Area Identification: LAKESHORE EAST 10 C
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA. Signed: 7 / 9 Bugger Date APR. 7 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of Contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 2003</u>
Print Name FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Area Identification: LAKES HORE EAST 10 D # 1
Date of Verification Survey: APR. 4 2003
Time of Verification Survey 9 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: Del S. Buggreen
Signed: PUL S. Buggreen Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 on
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 2003</u>
Print Name FREDRICK A. MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Tredrick a. Micke

Area Identification: LAKESHORE EAST 90
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: 124 9. Buggram
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROTECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 on Capacil 16, 2003. The results of this survey indicate that the verification criteria as contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 2003</u>
Print Name_FREDRICK A MICKE
Print Title ON-SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Area Identification: LAKE SHORE LAST 10 D # 3
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 A m am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
signed: Phl G. Buggreen
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of Contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date <u>April 16, 2003</u>
Print Name FREDRICK A. MICKE
Print Title ON - SCENE COORDINATOR
For USEPA Region 5 Fredrick a. Micke

Nutranl Gamm	a Spec	Report-	Lakeshore	East Projec	ŧ
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221 North Columbus Drive, Chicago, IL.

Custimian	TARL PROFICE	inni ĝamnice	for April 4, 2003
CXCHUBIUM	LUND CAIRBING	IWIY COHIVICS	101 MM 13:45 TAAA

Sample	Sample	Sample	Descri	ption	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Pa-220	Total Radium	Total Radium
aı	Date	Group	.	, ,		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty.	Activity	Uncertidaty
738	4/4/03	EPA	\$2517 11C#1 E	3A#1	38.4	1.15	2.18	0.33	0,50	1.27	0.64	1.6	
739	4/4/03	EPA	\$2518 11C#1 E	A#2	35.7	2.08	2.49	0.27	0.68	1.47	0.98	1.74	1.102611904
740	4/4/03	EPA	82519 11C#1 El	PA#3	39.5	-1,69	1.64	0.9	0:45	0.36	0,64	1.26	0.7823682
741	4/4/03	EPA	82520 11C#1 EI	PANA	38.5	8:6	3.15	1.46	Ó.B	-0.42	1.08	1.04	1.344028809
742	4/4/03	EPA	82521 11C#1 E	PA#5	36.8	B.03	2.54	-0.4	0:64	3.25	0.97	9.25 2.85	1.16211015
			photographic companies and the second of the	وعليب مسترث والمرابعة ومناسرة ومناها ومناسبة ومناسبة		Company of the last of the las			X=1.	78			

Average Total Radium (Th-232+Ra-226) Concentration for :

11C#1 a=0.87

1.70

pCl/g

-		يكاجئت فينتنا ويسر			والمناف المنافع				بنصبنها			
Sample]	Sample	Semple	Description	Weight	U-238	C1-53-9	Th-232	Th 252	Ra-226	Pai-228	Total Redium	Total Radium
OI OI	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty.
743	4/4/03	EPA	82522 11C#2 EPA#1	31.8	5.93	2.59	1.5	0.67	2.74	0.97	4,24	1.17889779
744		EPA	62523 11C#2 EPA#2	32.3	10.52	3.22	0.68	0.81	2.34	1.17	3,02	1.423024947
745	4/4/03	EPA	52524 11C#2 EPA#3	32.5	1,86	2.77	1.63	0.74	1.41	1.03	3.04	1:269266534
748	4/4/03	EPA	82525 11C#2 EPA#4	29.4	5.47	2.27	1.9	0.59	1.99	0.63	3.89	1.019331960
747	4/4/03	EPA	\$2526 11C#2 EPA#6	32.9	-0.85	2.37	0.97	0,63	3.69	0,92	4.56	1.115033632
								マミ	3 75			

Average Total Radium (Th-232+Ra-226) Concentration for :

11C#2 a=0,70 3.75

	ctivity Uncertainty
2.52 1.16	3.12 1.40346001
0.65 1.13	3.01 1.395173342
2.95 1.17 2.9	5 2.67 1.408164997
2.46 0.66	3.25 1.042928569
2.18 1.11	2.58 1,339628814
	2.95 1.17 2.90 2.46 0.66

Average Total Radium (Th-232+Ra-226) Concentration for :

又 = 2.98 11D

a = 0.25

2.93 pCl/g

Sample	Sample	Sample	Description	Weight	U-238	U-231	Th:282	Th-232	Ra-226	Re-226	Total Radium	: Total Radiam:
10	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
753	4/4/03		32532 10C EPA#1	32.2	6.17	2.92	1.74	0:74	0.58	1.03	2.32	1,286286534
754			82533 10C EPA#2	34.5	1.71	3.38	1.10	0.89	2.64			1:550806242
755			82534 10C EPA#3	32.6	-3.34	2	1.81	0.66	1,64	0.78	3.35	0.900209311
.758	4/4/03		82535 10C EPA#4	31.1	6	3.97	0.00	1.02	1.61	1.45	2.17	1.772822608
757	4/4/03	EPA	82538 10C EPA#5	30.3	-0.27	3.33	0.33	0.89	1.89	1.29	2.22	1.66722865
				,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Χ-	2.75			

Average Total Radium (Th-232+Ra-228) Concentration for :

10C a= 0.71 2.75

pCi/g

Sample	Semple	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Pta-228	Total Radium	Total Radium
ID:	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty.	Activity	Uncertainty
758	4/4/03	EPA	82537 100#1 EPA#1	31.6	-1.08	2.16	2.44	0.6	0.36	0.62	2.6	
759	4/4/03	ĒΡΑ	62538 10D#1 EPA#2	29.8	6,57	2.69	1,92	0.7	2	0.98	3.02	
780		EPA	82539 10D#1 EPA#3	34.5	1.99	3,3	1,56	0.9	2.96	1.26	4,62	1.549418548
761		EPA	82540 100#1 EPA#4	33.6	-1.67	3.02	1.24	0.64	3.83	1.21	5.07	1,472090158
782		EPA	82541 100#1 EPA#5	34.3	-2.79	2.85	1.36	0.79	1.78	1.15	3.13	1.395206078
X=3.89												
Average Total Radium (Th-232+Ra-226) Concentration for: 10D#1 \$\incep = 0.94 3.89 \pCi/g												

Bample	Sample	Sam ple	Description	Weight	U-238	11-238	Th-232	Th-252	Ra-226	Ma-126	Total Radium	Total Rudisim
tD	Date	Group	i	jj	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
763	4/4/03	EPA	\$2542 9C EPA#1	28.6	2.55	2.98	0.8	0.79	1.44	1,14	2.24	
764	4/4/03	EPA	82543 9C EPA#2	27.7	2.13	2.5	0.01	0.87	2.83	1.02	2.64	
765	4/4/03	EPA	82544 9C EPA#3	31.2	6.35	3,98	1.4	1.01	1.07	1.45	2.47	1.767088
766			82545 9C EPA#4	29.8	4.59	2.88	0.18	0.76	4:1	1.13	4.28	1.373062271
767	4/4/03	EPA	S2546 9C EPA#5	32.6	0.09	3.5	1.81	0:93	1,58	1.31	3.39	1.606549097
•								V = 3 A				

40.E = X = 3.0 Average Total Radium (Th-232+Ra-226) Concentration for : 3.04 pCl/g

Sample	Sample	Sample:	Description	Welght	U-238	U-148	7h-232	Th-201	Ra-226	Rs-226	Total Radium	Total flatiem
ID [Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Undertility
768	4/4/03	EPA	\$2547 100#3 EPA#1	34.6	1.85		1,65	0.55	1.47	0.77	3.12	0.948255779
789		EPA	82548 10D#3 EPA#2	34.8	5.31	2.67	1:91	0.68	0.3	0.94	2.21	1.160172401
770			82549 10D#3 EPA#3	34.2	4.35	1.83	0.9	0:46	2.12	0.69	3.02	0.840535544
771	4/4/03	EPA	S2550 10D#3 EPA#4	33.4	-0.07	2.69	1.78	0.69	1.69	0.97	3,47	1.190378001
772	4/4/03	EPA	52551 10D#3 EPA#6	36.7	4.8	3.24	1.46	0.86	0.62	1.2	2.07	1.470346842
$\sqrt{2} = 2.78$												
Averag	e Total I	Radium	(Th-232+Ra-226) Cor	ncentratio	on for :		100#3	A= C	10.61	2.78	pCl/g	

STS CONSULTANTS, LTD.

Consulting Engineers and Environmental Scientists 750 Corporate Woods Parkway

Vernon Hills, Illinois 60061

Phone:

(847) 279-2500

Fax:

(847) 279-2510

Date: April 16, 2003

Total Number of Pages, Including Cover: 10

FAX TRANSMITTAL COVER SHEET PLEASE DELIVER THE FOLLOWING PAGES

NAME:

Fred Micke

COMPANY:

USEPA

FAX NUMBER(S): 708-496-8091

FROM:

Rich Berggreen

MESSAGE:

Attached please find the verification sign-off forms for the areas surveyed and sampled on Friday April 4 at Lakeshore East. All samples passed. These are the ones that were missing. With these sign-off forms, we are complete. Thanks

for your help. Please call with any questions.

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ļ	TASK NO.			

T. 1 4/7/03

STS CONSULTANTS, LTD. Consulting Engineers and Environmental Scientists 750 Corporate Woods Parkway Vernon Hills, Illinois 60061

Phone: Fax:

(847) 279-2500

(847) 279-2510

Date: April 7, 2003

Total Number of Pages, Including Cover: 10

FAX TRANSMITTAL COVER SHEET PLEASE DELIVER THE FOLLOWING PAGES

NAME:

Fred Micke, Verneta Simon

COMPANY:

USEPA

FAX NUMBER(S): 312-3539176

FROM:

Rich Berggreen

MESSAGE:

Attached please find the verification sign-off forms for the surveys conducted at Lakeshore East on Friday April 4. Please return signed forms to the field office, at 312-946-8323 or to the STS Vernon Hills office at 847-279-2510. Please call with any

questions.

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STS USE ONLY:	OFFICE	DEPT	JOB/PROJECT	NO.
1	TASK NO.		-	

Area Identification: LAKESHORE EAST IICH
Date of Verification Survey: Apr. 4, 2003
Time of Verification Survey 9 4m am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: PMS. Bygge. Date APR. 7, 2003 Print Name RICHARD G. BERGGREEN
Date Apr. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORSINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of this survey indicate that the verification criteria a contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title

Page 3 of 3

K:\WPDOCS\PROJECT\132193XA\Work Plan\SOP-223-verification survey.doc

For USEPA Region 5

Area Identification: LAKESHORE EAST 11 C # 2
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
signed: Phl S. Buggreen
Date Apr. 7, 2003
Print Name RICHARD G. BERCGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 o The results of this survey indicate that the verification criteria a contained in the UAO, have been met.
contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title

Page 3 of 3

K:\WVPDOCS\PROJECT\132193XA\\Work Plan\SOP-223-verification survey.doc

For USEPA Region 5

Area Identification: LAKESHORE EAST D
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey am/p
The above-described excavation was surveyed at the time and date indicated above. The suindicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA. Signed: 7, 2003
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 The results of this survey indicate that the verification criteria contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title
For USEPA Region 5

Page 3 of 3

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Area Identification: LAKESHORE EAST 10 C
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: RUG, Bugger
Date Apr. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COOR DIN ATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 or
contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title

Page 3 of 3

K:\WPDOCS\PROJECT\132193XA\Work Plan\SOP-223-verification survey.doc

For USEPA Region 5

Area Identification: $AKESHORE EAST 10 D = 1$
Date of Verification Survey: APR. 4, 2003
Time of Verification Survey 9 AM am/pn
The above-described excavation was surveyed at the time and date indicated above. The survindicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
signed: DUS. Buygreen
Signed: PUL S. Buggree Date Apr. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 The results of this survey indicate that the verification criteria contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title
For USEPA Region 5

Page 3 of 3

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Date of Verification Survey: APR. 4, 2003 Time of Verification Survey 9 AM am/pm
Time of Verification Survey 9 Am am/pm
The above-described excavation was surveyed at the time and date indicated above. The surve indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the USEPA.
Signed: PUS 9. Buggreen
Date APR. 7, 2003
Print Name RICHARD G. BERGGREEN
Print Title PROJECT COORDINATOR
STS Consultants, Ltd.
The attached Verification Survey documents were reviewed by USEPA, Region 5 of this survey indicate that the verification criteria a contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation.
Date
Print Name
Print Title

For USEPA Region 5

Page 3 of 3

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Area identification:	LAKE SHORE EAST 100	<u> </u>
Date of Verification Survey:	APR. 4, 2003	
Time of Verification Survey	9 AM	am/pm
	avation was surveyed at the time and date indicated above. been removed as required by the Site Removal Action Criteria.	The surve
Signed: PLL	is survey are attached for review and approval by the USEPA. 5. Bugguer 2. 7. 2003	
	HARD G. BERGGREEN	
	ECT COORDINATOR	
STS Consultants, Ltd.		
The attached Verification	on Survey documents were reviewed by USEPA, Re The results of this survey indicate that the verification between met.	egion 5 o on criteria a
	nted to commence backfill and restoration work at this excavation	
Date		
Print Name		
Print Title		
For USEPA Region 5		

Page 3 of 3

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Nutrani Gamma Spec Report-Lakeshore East Project

221 North Columbus Drive, Chicago, IL.

Exclusion Zone Confirmatory Samples for April 4, 2003

mple	Sample	Sam ple	Det	eription	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Re-226	Total Radium	Total Redium
ID	Date	Group				Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
738	4/4/03	EPA	92517 11C#	EPAY1	38.4	1.15	2.18	0.33	0.58	1.27	. 0.84	1.6	1.02078401
739	4/4/03		82518 11C#		35.7	2.08	2.49	0.27	0.66	1.47	0.98	1.74	1.19281180
740	4/4/03		82519 11C#	EPA#3	33.5	-1.69	1.64	0.9	0.45	0.36	0.84	1.26	0.78236
741	4/4/03	EPA	S2520 11C#	EPA#4	38.5	8.6	3.15	1.46	0.8	-0.42	1.08	1.04	1.3440238
742	4/4/03	EPA	S2521 11C#	EPA#5	36.8	8.03	2.54	-0.4	0.64	3.25	0.97	2.85	1.162110

Average Total Radium (Th-232+Ra-226) Concentration for: 11C#1 1.70 pCi/g

Semple	Sample	Sample	Description	Weight	U-238	U-288	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID.	Date	Group	<u> </u>	1 1	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
743	4/4/03	EPA	82522 11C#2 EPA#1	31.8	5.93	2.59	1.6	0.67	2.74	0.97	4.24	1.17869779
744	4/4/03	1	82523 11C#2 EPA#2	32.3	10.62	3.22	0.68	0.81	2.34	1.17	3.02	1.423024947
745	4/4/03	EPA	82524 11C#2 EPA#9	32.5	1.86	2.77	1.63	0.74	1.41	1.03	3.04	1.26826653
748	4/4/03		82525 11C#2 EPA#4	29.4	5.47	2.27	1.9	0.59	1.99	0.83	3.89	
747	4/4/03	EPA	82526 11C#2 EPA#5	32.9	-0.66	2.37	0.97	0.63	3.59	0.92	4.56	1.11503363

Average Total Radium (Th-232+Ra-226) Concentration for: 11C#2 3.75 pCl/g

Sam ple	Sample	Sample	De	teription	Weight	U-238	U-200	Th-232	Th-232	Ra-228	Na-226	Total Radium	Total Radium
ID	Date	Group				Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
748	4/4/03	EPA	S2527 11D	PA#1	35.4	6.98	3.13	0.6	0.79	2.52	1.16	3.12	1.4034600
749	4/4/03	EPA	62528 11D E	PA#2	34.6	0.11	2.98	2.36	0.82	0.65	1.13	3.01	1.30617334
750 751	4/4/03	EPA	\$2528 11D E	PARS	36.7	3	2.91	-0.28	0.78	2.95	1.17	2.67	1.40616499
751	4/4/03	EPA	82530 11D E	PA#4	32.9	2.81	2.22	0.79	0.59	2.46	0.86	3.25	1.04292856
752	4/4/03	EPA	82531 11D	PANS	35.3	5.03	2.89	0.4	0.75	2.18	1.11	2.58	1.33962681

Average Total Radium (Th-232+Ra-226) Concentration for: 11D 2.93 pCl/g

Sample	Sample	Sam ple	Description	Weight	U-256	U-210	Th-282	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID	Disto	Group		ŀ	Activity	Uncortainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
753	4/4/03	EPA	82532 10C EPA#1	32.2	6.17	2.92	1.74	0.74	0.58	1.03	2.32	1:26828663
764 755	4/4/03	EPA	82533 10C EPA#2	34.5	1.71	3.36	1.13	0.89	2,54	1.27	3.67	1.55080624
755	4/4/03		82534 10C EPA#3	32.6	-3.34	2	1:81	0.56	1.54	0.78	3.35	0.96020831
756	4/4/03		82535 10C EPA#4	31.1	6	3.97	0.66	1.02	1.51	1.45	2.17	1.77282260
757	4/4/03	EPA	62538 10C EPA#6	30.3	-0.27	3.33	0.33	0.89	1.89	1.29	2.22	1.5872268

Average Total Radium (Th-232+Ra-226) Concentration for: 10C 2.75 pCl/g

*04/07/2003 09:14 FAX 847 2792535

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758 4/4/03 EPA \$2537 1000 759 4/4/03 EPA \$2538 1000		31.6	Activity	Uncertainty 2.16		Uncertainty	Activity	Uncertainty	Activity	Uncertainty
759 4/4/03 EPA 62538 10De		31.8	-1 08	0.46	X 17	المتنبذ والمتحدد				
	As A Company of the Party of th			£. 10	2.44	0.8	0.36	0.82	2.8	1,01607086
	P1 EPA#2	29.8	6.57	2.69	1.92	0.7	2[0.98	3.92	1.20432553
760 4/4/03 EPA 62539 10D	#1 EPA#3	34.5	1.99	3.3	1.56	0.8	2.96	1.25	4.62	1.54841854
761 4/4/03 EPA 82640 10D	#1 EPA#4	33.6	-1.67	3.02	1.24	0.84	3.83	1.21	5.07	1.47299015
762 4/4/03 EPA 82541 10DI	#1 EPA#5	34.3	-2.79	2.65	1 36	0.70	1.76	1.15	3.13	1.39520607

emple	Sam ple	Sample	Description	Weight	U-238	U-636	Th-232	Th-232	Ra-226	Re-226	Total Radium	Total Redium
ID:	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
783	4/4/03	EPA	\$2542 9C EPA#1	28.6	2.55	2.98	0.8	0.79	1.44	1.14	2.24	1.38597512
764	4/4/03	EPA	82543 9C EPA#2	27.7	2.13	2.5	0.01	0.67	2.83	1.02	2.84	1.22036879
765	4/4/03	EPA	82544 9C EPA#3	31.2	5.35	3.98	1.4	1.01	1.07	1.45	2.47	1.76708
766	4/4/03	EPA	\$2545 OC EPA#4	29.8	4.59	2.88	0.18	0.78	4.1	1,13	4:26	1.37308227
767	4/4/03	EPA	\$2546 9C EPA#5	32.6	0.09	3.5	1.81	0.93	1.58	1.31	3.39	1.60654909

ample	Semple	Sample :		Description	Weight	U-238	U-298	1h-232	Th-292	Ra-226	Re-226	Total Radium	Total Radium
ID	Date	Group	ļ			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
788	4/4/03		82547	10D#3 EPA#1	34.6	1.85	2.04	1:65	0.55	1.47	0.77	3.12	0.946255779
769	4/4/03	EPA	\$2548	100M3 EPA#2	34.8	5.31	2.57	1.91	0.68	0.3	0.94	2.21	1.150172401
770	4/4/03	EPA	S2549	10DKS EPAKS	34.2	4.36	1,63	0.9	0.48	2.12	0.69	3.02	0.84053554
771	4/4/03	EPA	82560	10D#3 EPA#4	33.4	-0.07	2.59	1.78	0.69	1.69	0.97	3.47	1.19037809
772	4/4/03	EPA	82551	10D#3 EPA#5	35.7	4.8	3.24	1.45	0.88	0.62	1.2	2.07	1.47834684

Area Identification:	section 94.	# <u>f</u>
Date of Verification Survey:	3-27-03	
Time of Verification Survey		am/pm
	on was surveyed at the time and an are been removed as required	
Documents pertaining to this su	rvey are attached for review and	d approval by the U.S. EPA.
Signed:	lon-	Date <u>3-27-</u> C
Tota AN		(Print Name)
FIELD TEN	,	(Print Title)
	87\$ Consultants Solutions through Science & Engine vey documents were reviewed	by U.S. EPA, Region V o
criteria as contained in the UAC	The results of this survi), have been met.	ey molcate that the venication
Authorization is hereby granted	to commence backfill and resto	ration work at this excavatio
Bigned:		
Jandard (2. Micke	Date 4/2/03
		·
FREDRICK A.	MICKE	(Print Name)
		(Print Name) (Print Title)
FREDRICK A.		•
FREDRICK A.		•

Area Identification: SECT	ION IN	
Date of Verification Survey:	3-27-03	>
Time of Verification Survey	9:00 m	am/pm
The above-described excavation w survey indicated that all soils have Criteria.		
Documents pertaining to this survey	are attached for review an	d approval by the U.S. EPA.
Signed:	•	
_ far lule	<u> </u>	Date 3-27-0
Tolfa ANDA	rsor	(Print Name)
FIELD TEAM	LEHOER	(Print Title)
ST	STS Consultants Solutions through Science & Engine	•
april 2, 2003	documents were reviewed . The results of this surv	by U.S. EPA, Region V
april Z, 2003 criteria as contained in the UAO, hav	Solutions through Science & England documents were reviewed The results of this survive been met.	by U.S. EPA, Region V of a service that the verification
criteria as contained in the UAO, have Authorization is hereby granted to contained in the UAO.	Solutions through Science & England documents were reviewed The results of this survive been met.	by U.S. EPA, Region V of a service that the verification
criteria as contained in the UAO, have Authorization is hereby granted to contained in the UAO.	Solutions through Science & England documents were reviewed The results of this survive been met.	by U.S. EPA, Region V of a service that the verification
The attached Verification Survey of April 2, 2003 criteria as contained in the UAO, have Authorization is hereby granted to consigned:	Solutions through Science & England documents were reviewed The results of this survive been met.	by U.S. EPA, Region V of any indicate that the verification work at this excavation

Page 4

3/6/02 I!

FORM 223-1 NOTIFICATION OF SUCCESSFUL VERIFICATION SURVEY

Assa Identifonti	SECTION.	7c
Area Identification:		
Date of Verification Survey:	5-6-03	:
Time of Verification Survey	9:00 km	am/pm
The above-described excavation is survey indicated that all soils have Criteria.	was surveyed at the time and e been removed as required	d date indicated above. The by the Site Removal Action
Documents pertaining to this surve	y are attached for review and	approval by the U.S. EPA.
Signed:	//	
Joh 1	ml	Date 3-6-03
Total An	drasor	(Print Name)
FIRED TRAM	LANDEL	(Print Title)
E3	878 Consultants, L Solutions through Science & Engineer	
The attached Verification Survey March 7, 2003 Interis as contained in the UAO, ha	The results of this survey	
Authorization is hereby granted to o	commence backfill and restors	tion work at this excavation
Sign e d:	,	
Fredrick a. Mi	che	Date 3/7/03
FREDRICK A. A	MICKE	(Print Name)
ON-SCENE COC	ORDINATOR	(Print Title)
for U.S. EPA Region V		•

Page 4

Version for At Property 227

Nutrani Gamma Spec Report-Lakeshore East Project

221 North Columbus Drive, Chicago, IL.

Exclusion Zone Confirmatory Samples for March 6, 2003

Sample	Sample	Sample	Description	Weight	U-236	U-236	Th-232	Th-212	Ra-226	Ra-124	Total Radium	Total Redium
al al	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
837	3/6/03	EPA	S2459 7C EPA#1	30.6	2,74	2.44	0.3	0.64	1.24	0.94	1.54	1.137189518
638	3/6/03	EPA	S2460 7C EPA#2	32.5	1.35	2.18	0.56	0.59	1.05	0.85	1.61	1.034698024
639	3/6/03	EPA	S2461 7C EPA#3	30.9	0.72	2.4	1.25	0.66	2.43	0.95	3.68	1.156782724
640	3/6/03	EPA	S2462 7C EPA#4	35	9.72	2.87	0.05	0.71	0.91	1.05	0.96	1.267517258
641	3/6/03	EPA	S2463 7C EPA#5	29.1	3.31	2.59	0.19	0.68	1,5	0.99	1,69	1.201041215

Average Total Radium (Th-232+Ra-226) Concentration for :

7C

90 pCi/s

$$\overline{\chi} = 1.90 \text{ pCilg}$$

$$R = 1.04$$

H. H. Holmes Testing Laboratories, Inc. 170 Shepard Avenue, Wheeling, IL 60090 Phone: 847-541-4040 Fax: 847-537-9098

Quality since 1936!

	1804 Jesch From John Anderson - 312-946-8 12-353-92940000 3	
Phones	Onto: 2-11-03	
Ner Lake Shore East Daily	y Cei	
3 Urgant	☐ Please Comment A Please Reply ☐ Please Recycle	
Comments.		
PLANSA	FAX TO: 312-946-8323 V 204A 114-102 E113T	
Exelusion	V 2041 114-102 ENST	

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rea Identification:		10 = =	
ate of Verification Surve	sy:	0-03	·
me of Verification Surve	By	1:00 14-	am/pm
ne above-described ax rivey indicated that all riteria.	cavation was sun soils have been	veyed at the time a removed as require	and date indicated above. od by the Site Removal Ad
ocuments pertaining to	this survey are at	ached for review an	id approval by the U.S. EPA
igned:	///		
fsh	bul-		Date 2-11-0
Tols	V Andras	ion	(Print Name)
and the second s			(Print Title)
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Se	Bolutik	878 Consultant one through Science & Engin	
iteria as contained in th	n Survey docume. The	ent were reviewed to results of this surv	
iteria as contained in th	n Survey docume. The	ent were reviewed to results of this surv	by U.S. EPA, Region V by Indicate that the verifica
iteria as contained in the uthorization is hereby go	n Survey documents. The UAO, have been rented to commen	ent were reviewed to results of this surv	by U.S. EPA, Region V by Indicate that the verifical position work at this excavati
iteria as contained in the uthorization is hereby grand: Juneary	n Survey documents The UAO, have been rented to comments	ents were reviewed to results of this survince.	by U.S. EPA, Region View Indicate that the verifical pration work at this excavation. Date 21211
iteria as contained in the uthorization is hereby going igned: Ulumba Vernesa	n Survey documents The UAO, have been ranted to comments Simi	ents were reviewed a results of this survince backfill and resto	by U.S. EPA, Region View Indicate that the verifical pration work at this excavation. Date 21211

Exclusion Zone Confirmatory Samples for February 11, 2003

Sem ple	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Re-226	Ra-220	Total Radium	Total Radium
10	Date	Group		11	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
559	2/12/03	EPA	S2411 11A10B East EPA#1	30.4	3.51	2,45	1.67	0.64	0.46	0.89	2.13	1 098220781
580	2/12/03	EPA	S2412 11A10B East EPA#2	29.2	-5.25	1.73	1.46	0.5	1.76	0.7	3.22	0.860232527
561	2/12/03	EPA	\$2413 11A10B East EPA#3	26.1	0.94	2.81	0.55	0.73	1.29	1.07	1.84	1.295299193
562	2/12/03	EPA	S2414 11A10B East EPA#4	28.5	3.89	2.07	0.1	0.53	1.36	0.78	1.46	0.943027041
563	2/12/03	EPA	\$2415 11A10B East EPA#5	31.6	-0.05	1,96	1.65	0.54	0.19	0.74	2.04	0.916078599
Averag	je Total I	Radium	(Th-232+Ra-226) Con	centrati	on for :		11A10	B East	, , , , , , , , , , , , , , , , , , , ,	2.14	pCi/g	

Note:

- Samples were collected on 2/11/03, but were not analyzed until 2/12/03. GAH
- This is the exclusion zone that was previously above the cleanup threshold of 7.1 pCi/gram and was cleaned up.

211/

H. H. Holmes Testing Laboratories, Inc.

170 Shepard Avenue, Wheeling, IL 60090 Phone: 847-541-4040 Fax: 847-537-9098

Fax

TO USEPA

Quality since 1936!

hanas	8/ Papes 5	7-03	
Lake Shore East	F1 = 31	2-946-832	· }
Urgent 🗆 For Review 🔘	lease Comment Please I	Reply 🖾 Please Recycle	
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Section 2			
Section 2	14 108 WEST		
Section 18 Section 2 Section 1	14 108 WEST		

This fex transmission is intended only for the addresses shown above. It may contain information that is privileged, confidential or otherwise protected from disclosure. Any review, dissemination or use of this transmission or its content by persons other than the addresses is strictly prohibited. If you have received this transmission in error, please cell 847-541-4040. Thank you!

Area Identification:	10B V	VE57	
Date of Verification Surv		5-03	
Time of Verification Surv	еу	9:00 km	am/pm
The above-described as survey indicated that all Criteria.	cavation wa soils have i	is surveyed at the ti been removed as re	ime and date indicated above. The equired by the Sita Removal Action
Documents penalning to	this survey a	are attached for revie	ew and approval by the U.S. EPA.
Signed:	de l		Date 2-7-03
	Tothe 1	Andreson	(Print Name)
FIRLD	TRAN	Lundia	(Print Title)
<u>e</u> e		ETS Cens Solutions through Science &	euritants, Ltd. & Engineering
The attached Verification 2/7/03 criteria as contained in the		. The results of this	lewed by U.S. EPA, Region V o
Authorization is hereby g	ranted to co	mmence backfill and	i restoration work at this excavation
Signed:	men for	Fred Mack	4 Date 2/2/03
Larry Je	rser.		•
Health 81	yricist		(Print Title)
Facilie EDA Basina V			•

Time of Verification Survey	9:00	am in
Time of Verification Survey		am/pr
The above-described excavation was survey indicated that all soils have been Criteria.	y	
Documents pertaining to this survey are a	ttached for review and	approval by the U.S. E
Signed:		
for line		Date <u>Z-7-</u>
JoHn ANDERSON	<u> </u>	(Print Name
_		
FIELD TEM LEND	XIL	(Print Title
FIRLD TEM LEN	West	Print Title
GR	STS Consultants,	Led.
GR		Led.
The attached Verification Survey docum	STS Consultants, ions through Solenos & Engine ients were reviewed	ted. wing by U.S. EPA, Region
The attached Verification Survey documes 2/7/63. The strain of the strai	STS Consultants, ions through Salance & Engine nents were reviewed no results of this surve	ted. wing by U.S. EPA, Region
The attached Verification Survey docum 27/63 Triteria as contained in the UAO, have been	STS Consultants, fone through Science & Engine tents were reviewed to results of this surve an met.	by U.S. EPA, Region by Indicate that the verif
The attached Verification Survey documents as contained in the UAO, have been Authorization is hereby granted to commen	STS Consultants, fone through Science & Engine tents were reviewed to results of this surve an met.	by U.S. EPA, Region by Indicate that the verif
The attached Verification Survey docum 27/63 Triteria as contained in the UAO, have been	ens through Science & Engine tents were reviewed no results of this surve an met.	by U.S. EPA, Region by Indicate that the verification work at this excess
The attached Verification Survey documents as contained in the UAO, have been Authorization is hereby granted to commen	STE Consultants, fore through Science & Engine tents were reviewed no results of this surve an met. Ince backfill and restor	by U.S. EPA, Region by Indicate that the verif
The attached Verification Survey documents as contained in the UAO, have been Authorization is hereby granted to commendation.	ens through Science & Engine tents were reviewed no results of this surve an met.	by U.S. EPA, Region by Indicate that the verification work at this excess

Date of Verification Survey	Or.		
Time of Verification Survey			am/pm
The above-described exca survey indicated that all so Criteria.	vation was sun bils have been	veyed at the time a removed as require	and date indicated above d by the Site Removal A
Documents pertaining to th	is survey are at	ached for review an	d approval by the U.S. El
Signed:			
- far	he ling		Date 2-7-6
Je	the And	drusion	(Print Name)
FIXED S	Taym LA	MPRA	(Print Title)
FIXED S	Tam In	APRA	(Print Title)
FIXED S		STS Consultant	n, Leef.
E3		`	•
The attached Verification	Survey docum	STS Consultanti ine through ficience & Engin ents were reviewed	t, Let. Hering by U.S. EPA, Region
The attached Verification 2/7/03	Survey docume	STS Consultants one through Aldenos & Engine ents were reviewed ents results of this surv	n, Led. sering
The attached Verification 2/7/03 criteria as contained in the	Survey docume The UAO, have bee	STS Consultants ins through Science & Engine ents were reviewed ents results of this surv in met,	bering by U.S. EPA, Region by Indicate that the verific
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The attached Verification 2/7/03 criteria as contained in the Authorization is hereby gran	Survey documents of the total comments of the comments of the total comments of the tota	STS Consultants ins through Science & Engine ents were reviewed ents results of this surv in met,	bering by U.S. EPA, Region by Indicate that the verific
The attached Verification 2/7/03 criteria as contained in the Authorization is hereby graduated:	Survey documents of the comments of the commen	STS Consultants in through Science & Engine ents were reviewed e results of this surv in met. ice backfill and resto	by U.S. EPA, Region by Indicate that the verific

Exclusion Zone Confirmatory Samples for February 5, 2003

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
ID !	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
520	2/6/03	EPA	\$2381 10A EPA#1	29.7	· 3.21	2.63	0.05	0.68	2.1	1.01	2.15	1.217579566
521	2/8/03	EPA	S2382 10A EPA#2	29.6	0.87	3.19	0.71	0.84	3.02	1.24	3.73	1.497731616
523 .	2/6/03	EPA	\$2383 10A EPA#3	28.9	-0.97	2.05	0.18	0.55	3.69	0.83	3.87	0.995690715
524	2/6/03	ÉPA	S2384 10A EPA#4	32.5	0 4.75		1.14	1.28	4.92	1.68	6.06	2.274379036
525	2/6/03	EPA	\$2385 10A EPA#5	29.8	-7.07	5.08	1.78	1.37	2.91	1.96	4.69	2.391338537

Average Total Radium (Th-232+Ra-226) Concentration for :

10A

4.10

pCi/g

016

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-228	Total Radium	Total Radium]
ID	Date	Group	.		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	. ا
528	2/7/03	EPA	\$2386 29C EPA #1	27.1	0.58	2.8	3 35	0.75		0 1	3.25	1.25	3.3
529	2/7/03	EPA	S2367 29C EPA #2	27.5	4.39	2.38		0.61	3.22	0.89	4.29	1.078981001	142
530	2/7/03	EPA	S2388 29C EPA #3	24.9	4.9	1.55	(-0.24	0.41	4.28			0.734982993	4.7
531	2/7/03	EPA	S2389 29C EPA #4	25.2	3.65	2.24	1.04	0.59	2.27	0.84		1.026498904	
532	2/7/03	EPA	\$2390 29C EPA #5	26.1	5.12	2.47	1.21	0.64	1.81	0.93	3.02	1.128937554	3.
						+	the management					•• •• • • • • •	1 2

Average Total Radium (Th-232+Ra-226) Concentration for :

29C

3.58

pCi/g

3.02 M6

Sample	Sample	Sample	Desc	ription	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
(di	Date	Group				Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
533	2/7/03	EPA	S2391 11A10E	East EPA#1	42.5	29.06	23.97	7.24	6.04	86.75	9.31	93.99	11.09764389
534	2/7/03	EPA	52392 11A10E	East EPA#2	42.	3.85	2.24	0.55	0.59	1.78	0.66	2.31	1.042928569
535	2/7/03	EPA	S2393 11A10E	BEast EPAK3	42.8	4.01	1.77	1.14	0.46	2.39	0.66	3.53	0.804487414
536	2/7/03	EPA	\$2394 11A10E	Best EPA#4	43.6	2.3	3.06	0 18	0.83	3.63	1.22	3.81	1 475567687
537	2/7/03	EPA	\$2395 11A10E	East EPA#5	41.8.	2.48	2.44	1.26	0.65	2.61	0.93	3.67	1.134636506
		*		AND FAIL	*** Above	Cleanup Thr	eshold Lev	el of 7.1	oCi/arem	,		frame in angle and Morney was not in	1

Average Total Radium (Th-232+Ra-226) Concentration for :

11A10B East

21.50

pCi/g

Sam ple	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium	•
10	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	}
538	2/7/03	EPA	S2396 11A10B West EPA#1	37.7	0.73	2.81	1.45	0.75	1.13	1.07	2.58	1.30667517	
539	2/7/03	EPA	S2397 11A10B West EPA#2	40.8	5.91	2.33	(0.41	0.6	1.58	0.87	1.17	1.056834897	1 1
540	2/7/03	ÉPÀ	S2398 11A10B West EPA#3	39.9	2.49	2.88	1.63	0.75	0.16	1.05	1.79	1.29034879	1
541	2/7/03	EPA	S2399 11A108 West EPA#4	39.B	6.54	1.92	0.69	D.49	1.13	0.7	1.82	0.854458893	į į
542	2/7/03	EPA	\$2400 11A10B West EPA#5	37.2	2.52	2.13	0.37	0.56	2.45	0.82	2.82	0.992975327	1 1
										٠٠ ټوره ده د د محت ه صد			1 7
Averso	e Total	Radium	n (Th-232+Ra-226) Con	centratio	on for ·		11410	B West		2.04	pCi/g	_	بسرا

Note:

- Samples were collected on 2/5/03, but were not analyzed until 2/6/03 and 2/7/03. GAH

- Grid 11A10B East is above the cleanup threshold. We will resurvey area and excavate as needed. GAH

Page 1 of 1

	I TON 13 TO 19
Date of Verification Survey:	
Time of Verification Survey 9,00 km²	am/pm
The above-described excavation was surveyed at the time an survey indicated that all soils have been removed as required Criteria.	
Documents pertaining to this survey are attached for review and	approval by the U.S. EPA.
Signed:	
fale lul-	Date 1-29-0
Tothe Muderson	(Print Name)
FIRED TERM LEADER	(Print Title)
STS Consultants, Solutions through Science & Engineer	
The attached Verification Survey documents were reviewed	
1/29/03 The results of this surve	by U.S. EPA, Region V on the verification of t
The results of this surve criteria as contained in the UAO, have been met.	y indicate that the verification
The results of this surve criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restor	y indicate that the verification
The results of this surve criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restor	y indicate that the verification
The results of this surve criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restor Signed:	y indicate that the verification
The results of this surve criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restor Signed: Treduck A. Mucke	y indicate that the verification ation work at this excavation. Date 1/29/03

Area Identification: 5-9 EnsTmal Wh	5/
Date of Verification Survey: 1-27-03	
Time of Verification Survey 9 00 Pm	am/pm
The above-described excavation was surveyed at the time and discrete indicated that all soils have been removed as required by Criteria.	ate indicated above. The the Site Removal Action
Documents pertaining to this survey are attached for review and app	proval by the U.S. EPA.
Signed:	
-fell lul-	Date 1-29-0
Tothe Mudanson	(Print Name)
FIRED TERM LEADER	(Print Title)
·	
STE Consultants, Ltd. Solutions through Science & Engineering	
The attached Verification Survey documents were reviewed by 1/29/03 The results of this survey inc.	U.S. EPA, Region V o
The attached Verification Survey documents were reviewed by 1/29/03. The results of this survey incriteria as contained in the UAO, have been met.	dicate that the verificatio
The attached Verification Survey documents were reviewed by 1/29/03. The results of this survey incidents as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration.	dicate that the verificatio
The attached Verification Survey documents were reviewed by 1/29/03. The results of this survey incriteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration Signed:	n work at this excavation
The attached Verification Survey documents were reviewed by 1/29/03. The results of this survey incidents as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration.	n work at this excavation Date 1/29/03
The attached Verification Survey documents were reviewed by 1/29/03. The results of this survey incident as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration Signed: ———————————————————————————————————	Date 1/29/03 (Print Name)

Nutrani Gamma Spec Report-Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Sample	Sample	Sam ple	Description	Weight	U-236	U-236	Th-232	Th-232	Ra-226	Ra-224	Total Radium	Total Radium
CI CI	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
469	1/28/03	EPA	82344 E-F.5/13-19 EPA#1	30.4	€.2	2.35	(-0.31)	0.59	2.54	0.9	2.23	1.07615054
470	1/28/03	EPA	\$2345 E-F.5/13-19 EPAK2	29.8	C.2	2.17	0.96	0.59	3.34	0.86	4.29	1.04292858
471	1/28/03	EPA	\$2346 E-F.5/13-19 EPAK3	30.3	3.27	1.93	0.45	0.5	1.97	0.74	2.42	0.393084542
472	1/28/03	EPA	82347 E-F.5/13-19 EPA#4	29.8	-4.49	2.35	1.34	0.65	3.13	0.93	4.47	1.134636500
473	1/28/03	EPA	\$2348 E-F.5/13-19 EPA#5	30.8	-0.91	2.59	0.97	0.78	3.48	1.16	4.45	1 397855
			(Th 222+De 226) Con			and the same of th	CES		= 3.6	3 05	- 1.06 - DCila	

[Average Total Radium (1h-232+Ra-226) Concentration for :

	<i>,</i> ~	2.00	
C C E#12 40		2 57	- Cile
.E-F.5/13-19	`	3.57	pCi/g
Z 1 10110 10			F

am ple	Sam pie	Sample	Description	Weight	U-238	U-235	Th-232	Th-232	Ra-226	Ra-228	Total Radium	Total Radium
ID	Date	Group	· ·		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
47€	1/29/03	EPA	\$2349 I-N/13-19 EPA#1	25.9	2.99	2.08	2.27	0.55	0.99	0.77	3.26	0.946255779
477	1/29/03	EPA	\$2350 I-N/13-19 EPA/2	31.1	2.33	2.35	2.14	0.62	1.83	0.88	3.97	1.078475731
478	1/29/03	EPA	\$2351 I-N/13-19 EPA#3	31.3	5.6	2.3	1.33	0.6	2.97	0.86	4.3	1.048618136
475	1/29/03	EPA	\$2352 I-N/13-19 EPA#4	27.2	7.73	2.63	1.07	0.67	1.51	0.94	2.58	1.154339638
480	1/29/03	EPA	\$2353 I-N/13-19 EPA#5	33.1	4.23	2.43	1.58	0.64	3.48	0.9	5.06	1 104355015
			(Th 000: De 000) Ce				1 11/42	又	3.83	2 2 2	0.95	THE RESERVE OF THE PROPERTY OF THE PARTY OF

|Average | Iotal Radium (1h-232+Ra-226) Concertration for :

I-N/1	3-1	9
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3.83

purg

												A
Sample	Sample	Sample	Description	Weight	U-238	U-236	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
10	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
481	1/29/03	EPA	62354 S-9 West EPA#1	27.1	4.49	3.1	1.16	0.81	2.03	1.18	3.22	1.414814476
482	1/29/03	EPA	52355 S-9 West EPA#2	26.2	1.72	2.34	1.95	0.63	1.14	0.86	3.09	1.06608754
483,	1/29/03	EPA	S235E S-9 West EPA#3	26.9	4.05	2.02	0.73	0.54	3.18	0.77	3.91	0 940478602
484	1/29/03	EPA	S2357 S-9 West EPAM	29	121	2.34	10.97	0.62	2.22	0.89	3.19	1 084665847
485	1/29/03	EPA	S2356 S-9 West EPA#5	28	4.21	2.93	1.25	0.77	1.65	1.09	2.9	1.33454112
		Em -11-AAA4, 1.200-1-1-1-1	de unpriprier appears i la singre i respecto di questigi mana accumiga na este tri e se e un est es				EAST 1 TH ALL PROPERTY	<u> </u>	- 3	26	= 0.38	

Average Total Radium (Th-232+Ra-226) Concentration for :

S-9 West

pCi/g

Sample	Sample	Sample	Description	Weight	U-238	U-230	Th-232	Th-232	Ra-226	Pa-226	Total Radium	Total Radium
10	Cate	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
486	1/29/03	EPA	\$2359 S-9 East EPA#1	23.5	2.69	1 65	1.96	0.44	0.85	0.61	2.81	0.752130308
487	1/29/03	E PA	S2360 S-9 East EPA#2	22	4 19	289	0.09	0.78	2.04	1.11	2.13,	1.356650287
488	1/29/03	EPA	32361 S-9 East EPA#3	23 5	7 53	2 28	0.09	0.58	3.35	0.88	3.44	1.05394497
489	1/29/03	EPA	S2362 S-9 East EPA#4	21.4	-1 35	2 17	1.7	0.61	1.93	0.86	3.63	1.054371851
490	1/29/03	EPA	S2363 S-9 East EPA#5	22.5	1 23	2.21	0.54	0.6	3.5	0.88	4.04	1.065082156
			The first section of the contract of the contr	*				区	= 3.2	=م ا	0.75	
Averag	e Total	Radium	(Th-232+Ra-226) Co	ncentratio	on for :		S-9 Ea			3.21	pCi/g	

⁻ Samples were collected on 1/27/03, but were not analyzed until 1/28/03 and 1/29/03. GAH

⁻ First 2 exclusion zones are from phase I. Second 2 exclusion zones are from caleson lest pits. GAH

12/23/02 To: Steve Kornder FROM: Lorry Jensen

STS Consultants

US EPA

(312) 886-5026

STS Consultants, Ltd.

750 Corporate Woods Parkway Vernon Hills, IL. 60061 Phone: (847) 279-2500 Fax: (847) 279-2510



FACSIMILE TRANSMISSION

Date: /2/23/02	Pages bei	ing transmitted, Incl. Cover:
To:	Company Name:	Fax No.:
Larry Jensen	USEPA-	312-353-9281
From: Stave K	ornder	Fax 3/2-946-832 Phone: 3/2-946-8326
Re: Jakishare S For Review Pleas	o Comment/Raply As Req	Jungication from Junested For Signature
Hossago: Jany	tacked the survey	strification signoft
Property In 1	The surveyer comple	tel by USEPA 26CD, 35B-36B
and 28 A on	December 23, 200?	the Konden

HMPGRYANT? The taceimile is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exampt from disclosure under applicable law. If the reader of this taceimile is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return this faceimile to us at the above address via the United States Postal Bervios. Thank you.

Area Identification: Sinding Phase Guck	Location 26 CP
Date of Verification Survey: 12-/23/67	
Time of Verification Survey	an /pm
The above-described excavation was surveyed at the time survey indicated that all soils have been removed as required criteria.	
Documents pertaining to this survey are attached for review	and approval by the U.S. EPA
Signed:	
At Kond-	Date 12/23/02
Steve Kounder	(Print Name)
Senia Beschemist	(Print Title)
ST\$ Consults Solutions through Science & En	• •
	ed by U.S. EPA, Region V o
criteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and re-	storation work at this excavation
Signed:	1 1
Larry Jensey for Ford Mcke	Date 12 23/02
Larry Jensen	(Print Name)
Senior Halth Physicist	(Print Title)
For U.S. EPA Region V	

Area Identification:	whing Phase Buil	Location 28A
Date of Verification Survey:		
Time of Verification Survey	9:00	
		time and date indicated above. The required by the Site Removal Action
Documents pertaining to the	is survey are attached for re-	view and approval by the U.S. EPA.
Signed:		Date 12/23/02
Steve Ko	and an	(Print Name)
Senia De	schemist	(Print Titie)
E3	878 C Salutions through Salenc	ionsultante, Ltd. ce & Engineering
The attached Verification		eviewed by U.S. EPA, Region V o
criteria as contained in the		his survey indicate that the verificatio
Authorization is hereby gra	nted to commence backfill as	nd restoration work at this excavation
Signed:	for Fred Micke	Date 12/23/02
Lirry Jenses	1	(Print Name)
Senior Healt.	h Physicist	(Print Title)
Enrille EDA Pagion V		•

· • • · · · · · · · · · · · · · · · · ·	Jun 35/336A
Date of Verification Survey: 12/23/07	,
Time of Verification Survey	(an)/pm
The above-described excevation was surveyed at the time a survey indicated that all soils have been removed as require. Criteria.	nd date indicated above. The day the Site Removal Action
Documents pertaining to this survey are attached for review and	d approval by the U.S. EPA.
Signed:	
At Kand	Date 12/23/02
Steve Korndon	(Print Name)
Some Beachingst	(Print Title)
ETB Consultants	
Solutions through Science & Engine	•
The attached Verification Survey documents were reviewed. The results of this survey.	by U.S. EPA, Region V o
The attached Verification Survey documents were reviewed. The results of this surveriteria as contained in the UAO, have been met.	by U.S. EPA, Region V or indicate that the verification
The attached Verification Survey documents were reviewed. The results of this surveriteria as contained in the UAO, have been met.	by U.S. EPA, Region V or indicate that the verification
The attached Verification Survey documents were reviewed. The results of this surveriteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoring signed:	by U.S. EPA, Region V or sy indicate that the verification ration work at this excavation
The attached Verification Survey documents were reviewed. The results of this surveriteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and resto	by U.S. EPA, Region V or sy indicate that the verification ration work at this excavation
The attached Verification Survey documents were reviewed. The results of this survey criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoring signed:	by U.S. EPA, Region V or sy indicate that the verification ration work at this excavation
The attached Verification Survey documents were reviewed. The results of this survey criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restorations. Signed:	by U.S. EPA, Region V of any indicate that the verification ration work at this excavation. Date 12/23/02

Nutrani Gamma Spec Report- Lakeshore East Project

221 North Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for December 23, 2002	Exclusion Zone	Confirmators	Samples for	December 23.	2002
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ample	Sam ple	Sample	Description	Weight	U-236	U-238	Th-232	Th-232	Ra-226	Rs-22\$	Total Radium	Total Radium
ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Lucertainly	Activity	Uncertainty
358	12/23/02	EPA	S2271 26CD EPA #1	27.2	-0.77	. 2.44	1.24	0.67	1.21	0.94	2 45	1.154339636
359	12/23/02	EPA	\$2272 26CD EPA #2	25.8	8.14	2.14	0.11	0.55	2.27	0.5	2.38	0.970824392
360	12/23/02	EPA	S2273 26CD EPA #3	23.9	3.27	2	1.04		1.88	0.77	2.92	0.9347727
361	12/23/02	EPA	S2274 26CD EPA #4	25.2	7.1	2.2	-0.03	0.56	2.6	0.84	(2.57)	1 009554357
362	12/23/02	EPA	S2275 26CD EPA #5	23.4	1.43	2.75	01	0.73	1.84	1 09	1.94	1 311868896
					7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -						2.46	
verac	e Total	Radiun	(Th-232+Ra-226) Co	encentrati	on for :		26CD			(2.45)	or. S DCi/a	

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Rp-226	Total Radium	Total Radium	ł
ID	Date	Group	i		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	
363	12/23/02	EPA	S2276 28A EPA #1	29	0.76	184	(-0.19	0.5	1.72	2.75	(1.53)	D.901387816	1.5
384	2/23/02	ÉPA	52277 28A EPA #2	27.9	5.15	2.18	0.23	0 56	0.58	D.81	0.81	0.984733460	
365	12/23/02		S2278 28A EPA #3	28.5	5.19	2.48	1.48	0.63	(1.43) 7.86	0.05	1.06806754	1.4
366	12/23/02	EPA	S2279 28A EPA #4	28.2	3.99	2.26	(-0.04	0.6	0.93	D.89	0.89	1.073359211	0
367	12/23/02	EPA	S2280 28A EPA #5	27	1.99	1.98	0	0.52	0.84	0.76	0.84	C.920869165	4
Averag	e Total	Radiun	ı (Th-232+Ra-226) Co	oncentratio	on for :	The Court of the Court	28A	The same and single to		0.82	الا pCi/g	h is ething in the experience of any or in the second of t	

Sam ple	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Tb-232	Ra-226	Re-226	Total Radium	*otal Radium
ID [Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
368	12/23/02	EPA	S2281 35836A EPA#1	19 2	C.78	3.19	2.23	0.86	1.9	1.19	4 18	468230227
369	12/23/02	EPA	S2282 35836A EPA#2	19.6	1.01	1.9	2.23	0.51	1.31	0.7	3 57	0.866083137
370	12/23/02	EPA	S2283 35836A EPA#3	17.6	6.59	1.56	0.94	0.4	2.19	0.58	3.13	0.704556596
371	12/23/02	EPA	S2284 35B36A EPA#4	18.5	9.32	2.35	-0.3	0.5	3.7	0.87	34	1.056834897
372	12/23/02	EPA	S2285 35836A EPA#5	18.9	7.47	2.44	1.25	0.63	2.77	0.92	4.02	1.115033632
Averag	e Total I	Radium	n (Th-232+Ra-226) Co	ncentratio	on for :		35B36	A		(3.66)	3.72 pCVg	

12/10/201

Area Identification: NORTH SLIP AREA: CC TO FF, 1804
Date of Verification Survey: 12-6-02
Time of Verification Surveyam/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the U.S. EPA.
Signed:
John Andreson (Print Name)
FIRLD VERM LEADER (Print Title)
STS Consultants, Ltd. Solutions through Science & Engineering
The attached Verification Survey documents were reviewed by U.S. EPA, Region V o 12/0/02. The results of this survey indicate that the verificatio criteria as contained in the UAO, have been met.
Authorization is hereby granted to commence backfill and restoration work at this excavation
Signed:
- Zredrick a. Micke Date 12/10/02
FREDRICK A. MICKE (Print Name)
ON-SCENE COORDINATOR (Print Title)

Area Identification: NORTH 5419 ARK	2 - EE TOFF, 12 TO14
Date of Verification Survey: 12-6-02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at t survey indicated that all soils have been removed a Criteria.	
Documents pertaining to this survey are attached for	review and approval by the U.S. EPA
Signed:	
fall fill	Date 12-10-02
Tolder Andresson	(Print Name)
FIRED TEAM LEADER	(Print Title)
Solutions through So	S Consultants, Ltd. lence & Engineering
The attached Verification Survey documents were 12/10/02	reviewed by U.S. EPA, Region V of this survey indicate that the verification
Authorization is hereby granted to commence backfil	and restoration work at this excavation
Signed:	
Fredrick a. Micke	Date 12/10/02
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATO	R (Print Title)
For U.S. EPA Region V	

Area Identification: NonTH 541 BARA.	55 TOUM 32 TO 34
Date of Verification Survey: 12-6-02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the survey indicated that all soils have been removed as Criteria.	
Documents pertaining to this survey are attached for rev	lew and approval by the U.S. EPA.
Signed:	
Jule like	Date 12-10-00
Tolta Andresson	(Print Name)
FIXLD TEAM LEADER	(Print Title)
STS C Belutions through Science	pnsultants, Ltd. • 2. Engineering
The attached Verification Survey documents were re	e & Engineering
The attached Verification Survey documents were results of the	eviewed by U.S. EPA, Region V on is survey indicate that the verification
The attached Verification Survey documents were read to 12 10 02. The results of the criteria as contained in the UAO, have been met.	eviewed by U.S. EPA, Region V on is survey indicate that the verification and restoration work at this excavation
The attached Verification Survey documents were read 12/10/02. The results of the criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill as	eviewed by U.S. EPA, Region V on is survey indicate that the verification
The attached Verification Survey documents were results of the criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill a Signed: Tredrick A. Micke	eviewed by U.S. EPA, Region V on is survey indicate that the verification and restoration work at this excavation
The attached Verification Survey documents were read 12 10 02. The results of the criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill a Signed:	eviewed by U.S. EPA, Region V on is survey indicate that the verification and restoration work at this excavation. Date 12/10/02 (Print Name)

Area Identification: WONTH Stig BREAT: XX	!-18
Date of Verification Survey: 12-6-02	
Time of Verification Survey 10:00***	am/pm
The above-described excavation was surveyed at the time an survey indicated that all soils have been removed as required Criteria	
Documents pertaining to this survey are attached for review and	approval by the U.S. EPA.
Signed:	- 12 .10 .10 .
John Andreson	Date <u>[2-10-0</u> 2
	(Print Name)
FIELD TEAM LEADER	(Print Title)
STS Consultants, Solutions through Science & Engine	, — — —
The attached Verification Survey documents were reviewed 12/10/02. The results of this surve criteria as contained in the UAO, have been met.	by U.S. EPA, Region V o by indicate that the verificatio
Authorization is hereby granted to commence backfill and resto	ration work at this excavation
Signed:	
Fredrick a. Micke	Date 12/10/02
FREDRICK A. MICKE	(Print Name)
ON - SCENE COOR DINATOR	(Print Title)
For U.S. EPA Region V	•

Area Identification: NonTH SLip MANN: IT To	00 85011
Date of Verification Survey: 12-6-02	
Time of Verification Survey 10:00 km	am/pm
The above-described excavation was surveyed at the time and date survey indicated that all soils have been removed as required by the Criteria.	indicated above. The Site Removal Action
Documents pertaining to this survey are attached for review and approx	val by the U.S. EPA.
Signed:	
Jan Int	Date 12-10-02
John Andreson	(Print Name)
FIELD TEAM LEADER	(Print Title)
•	
STS Consultants, Ltd. Solutions through Science & Engineering	
The attached/Verification Survey documents were reviewed by U.3 12/10/02 The results of this survey indices	S. EPA, Region V o
The attached Verification Survey documents were reviewed by U.S. 12 10 02 The results of this survey indice criteria as contained in the UAO, have been met.	are that the Aemicaho
The attached/Verification Survey documents were reviewed by U.3 12/10/02 The results of this survey indices	are that the Aemicaho
The attached Verification Survey documents were reviewed by U.S. 12 10 02	vork at this excavation
The attached Verification Survey documents were reviewed by U.S. 12/10/02 The results of this survey indice criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration with the unique survey in the un	are that the Aemicaho
The attached Verification Survey documents were reviewed by U.S. 12/10/02 The results of this survey indice criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration with the Co	vork at this excavation
The attached Verification Survey documents were reviewed by U.S. 12 10 02	vork at this excavation Date 12/10/02

NOTIFICATION OF SUCCESSES
Area Identification: NORTH SLIP ARAM: -T. Trocky 1/ vol3.5
Date of Verification Survey: 12-6-02
Time of Verification Survey 10:00 Pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action. Criteria.
Documents pertaining to this survey are attached for review and approval by the U.S. EPA.
Signed: Date 12-10-02
John Andreson (Print Name)
FIELD TRAM LANDER (Print Title)
STR Consultants, Ltd. Solutions Through Science & Engineering
The attached Verification Survey documents were reviewed by U.S. EPA, Region Vol. 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAC, have been met.
Sciutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region V o 12 10 02 The results of this survey Indicate that the verification
The attached Verification Survey documents were reviewed by U.S. EPA, Region Vol. 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAC, have been met.
The attached Verification Survey documents were reviewed by U.S. EPA, Region V on 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration work at this excavation signed:
The attached Verification Survey documents were reviewed by U.S. EPA, Region V of 12/10/02. The results of this survey indicate that the verification criteria as contained in the UAC, have been met. Authorization is hereby granted to commence backfill and restoration work at this excavation signed: Treduck Q, Mucke. Date 12/10/02

Area Identification: NONTH-SLIP ARTH:	IT TODO, 13.5
Date of Verification Survey: 12-6-02	
Time of Verification Survey 10:00 mm	am/pm
The above-described excavation was surveyed at the time and survey indicated that all soils have been removed as required b Criteria.	
Documents pertaining to this survey are attached for review and a	pproval by the U.S. EPA.
Signed:	
full lind	Date 12-10-C
John Androson	(Print Name)
FIRLD TEAM LEADER	(Print Title)
STS Consultants, Ltc Solutions through Science & Engineerin	
The attached Verification Survey documents were reviewed by 12/10/02. The results of this survey criteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and restorati	on work at this excavation
Signed:	, 1
Fredrick a, Micke	. / /
	Date 12/10/02
FREDRICK A. MICKE	Date 12/10/02 (Print Name)
FREDRICK A. MICKE ON-SCENE COORDINATOR	

The state of the s	NNTOPP 42TO
Date of Verification Survey: 12-6-02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time as survey indicated that all soils have been removed as required Criteria.	nd date indicated above. The d by the Site Removal Action
Documents pertaining to this survey are attached for review and	d approval by the U.S. EPA.
Signed:	
- free line	Date /2-/0-0
Tokn Andrenson	(Print Name)
FIRLD TRAM LEADER	(Print Title)
STS Consultants Solutions through Science & Engine	
The attached Verification Survey documents were reviewed 12/10/02 The results of this surve	
criteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and resto	ration work at this excavation
Signed:	
Fredrick a, Micke	Date 12/10/02
	Date Tellolos
FREDRICK A. MICKE	(Print Name)
	,

H. H. Holmes Testing Laboratories, Inc. 170 Shepard Avenue, Wheeling, IL 60090 Phone: 847-541-4040 Fax: 847-537-9098



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. /	NORTH SLIP ARK	ns:	
• 1	CCTOFF, 1804		
• •	EE TOFF, 12 TO 14		
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Nutrani Gamma Spec Report-Lakeshore East Project

mple	Sample	Sample	Description	Weight	U-238	U-239	Th-232	Th-232	Re-226	Ra-226	Total Radium	Total Radium
ED	Date	Group	•		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
276	12/5/02	EPA	\$2205 CC-FF/1-4 EPA#1	24.5	3.72	2.08	0.09	0.55	0.87	0.8	A CONTRACTOR OF THE PARTY OF TH	C 97082439
277	12/5/02	EPA	S2206 CC-FF/1-4 EPA#2	23.6	2.91	2.08	0.67	0.56	0.36	0.78	0.67 031	0.96020831
278	12/3/02	EPA	S2207 CC-FF/1-4 EPA#3	23.3	2.46	1.77	0.33	0.48	1 42	0.7		0.84875360
279	12/6/02	EPA	S2208 CC-FF/1-4 EPA#4	25.4	5.42	2.06	-0.52	0.55	1.91	0.81	والموسود مصدوقات كالمراجع	0.97908120
280	12/6/02	EPA	\$2209 CC-FF/1-4 EPA#5	22.3	7.08	1.53	0	0.38	C-0.18			0.66850579
veran	e Total	Radium	(Th-232+Ra-226) Con	centratio	on for		CC-FF	-/1- 4	_= 7.	ර්ර <i>ර</i> 0.85	pCi/q	
		·			711 101 .		7		1			
mple	Sample	Sam ple	Description	Weight	U-238	U-23 8	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Ratilum
ND	Date	Group			Activity	Uncertainty			Activity			Uncertainty
281	12/6/02	EPA	S2210 EE-FF/12-14 EPA#1	272	3.2	2.66	1.27	0.71	-147		Contract to the second	Language Language
282	12/6/02		S2211 EE-FF/12-14 EPA#2	27.4	3.38		f	0.5	·			
283	12/6/02		S2212 EE-FF/12-14 EPA#2	28.3	5.13						B 0.98	
			The state of the s	A STATE OF THE PARTY.	A AA	2.4	0.7	0.6	7. 1.04	0.9		1.1708836
284	12/6/02		S2213 EE-FF/12-14 EPA#4	279	2.09	1		1	حناء والمحدد بالمح	and the second second second second	The second of th	
295	12/8/02	EPA	S2213 EE-FF/12-14 EPAM S2214 EE-FF/12-14 EPAM (Th-232+Ra-226) Cor	272	6.16	ويموجي ساء مداميا	-0.67	1	.36	ہ <u>= ہ</u> 0.93	o. 29 pCi/g	
285 verag	12/6/02 je Tolal Sample	Radium Sample	62214 EE-FF/12-14 EPA#	272	6.16 on for : U-238	2.4: U-238	EE-FI	0.6 712-14 Th-232	.36 R1-224	0.93 Re-228	pCi/g	Tetal Radiu
285 Verag	12/6/02 je Tolal Sample Date	Radium Sample Group	S2214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description	27 2 ncentration	6.16 on for : U-238 Activity	U-238 Uncertainty	EE-FI	0.8 7/12-14 Th-232 Uncertains	Rs-226	0.93 Re-226	pCi/g Total Radium Activity	Tetal Radiu
285 verag mple ID 286	12/8/02 je Tolal Sample Date 12/8/02	Radium Sample Group EPA	S2214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description S2215 SS-UU/22-34 EPA#1	27 2 Ncentration	6.16 on for : U-238 Activity 2.36	U-218 Uncertainty 2.1	EE-FI	0.8 712-14 7h-232 Uncertaint	Rs-226 Activit	0.93 Ra-228 Uncurrentel 0.7	PCI/g Total Radium Activity 75 7 0.9	Tetal Radius Uncertaint 0.988349
285 /erag mple iD 286 287	12/8/02 je Total Sample Date 12/6/02 12/6/02	Radium Sample Group EPA EPA	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPA#1 52216 SS-UU/22-34 EPA#2	27 2 Ncentration Weight 20 9 21 7	6.16 On for : U-238 Activity 2.30 6.05	U-238 Uncursints 2.1	Th-232 Activity	0.8 712-14 Th-232 Uncertaint 1 0.5 10 0.4	Ra-224 Activit 8 0.11	0.93 Re-228 Uncortaint 0.7 0.7	Total Radium Activity 75 7. 1 0.9	Tetal Radius Uncertaint 0.988349 0.865332
285 /erag mple ID 286	12/8/02 je Total Sample Date 12/8/02 12/6/02 12/6/02	Radium Sample Group EPA EPA EPA	S2214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description S2215 SS-UU/22-34 EPA#1 S2216 SS-UU/22-34 EPA#2 S2217 SS-UU/22-34 EPA#3	Weight 20 9 21 7 20 4	6.16 On for : U-238 Activity 2.30 6.00 5.40	U-238 Uncurtainty 2.1 1.8 2.0	Th-232 Activity	0.8 712-14 Th-232 Uncertaints 1 0.5 1 0.4 0.5	Ra-220 Activit 8 -0.1 8 1.5 5 2.0	0.93 Ra-228 Uncertaint 0.7 0.7 0.7 0.7	75. Z9 pCi/g Total Radium Activity 75. 1. 0.9 72. 1. 5.2. 1.1 31. 2. 0.3. 1.5 1.5 1.5 8 1.5	Tetal Ratio Uncertaint 2 0.985349 0.865332 0.979081 2 0.985194
285 /erag mple iD 286 287 288	12/8/02 je Total Sample Date 12/6/02 12/6/02	Sample Group EPA EPA EPA EPA	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPA#1 52216 SS-UU/22-34 EPA#2	27 2 1 Centration Weight 20 9 21 7 20 4 20 5	6.16 On for : U-238 Activity 2.36 6.06 5.46	U-238 Uncurtaints 2.1 1.8 2.0 3 1.9	Th-232 Activity 8 04 8 04	0.6 712-14 Th-232 Uncertaint 1 0.5 1 0.4 0.5	Ra-226 Activity 8 0.1 8 1.5 5 2.0 4 1.5	0.93 Ra-228 Uncertaint 0.7 0.7 0.7 0.7 0.8	75. Z9 pCi/g Total Radium Activity 75. 1. 0.9 72. 1. 52. 1.1 31. 2.0.3. 1.5	Uncertaint 2 0.968349 1 0.865332 9 0.979081 2 0.965194
285 /erag mple ID 285 287 288 289	12/8/02 Je Total Sample Date 12/8/02 12/8/02 12/8/02 12/8/02	Sample Group EPA EPA EPA EPA	62214 EE-FF/12-14 EPARE (Th-232+Ra-226) Cor Description \$2215 \$\$-UU/22-34 EPARE \$2216 \$\$-UU/22-34 EPARE \$2217 \$\$-UU/22-34 EPARE \$2218 \$\$-UU/22-34 EPARE	Weight 20 9 21 7 20 4	6.16 On for : U-238 Activity 2.36 6.06 5.46	U-238 Uncurtainty 2.1 1.8 2.0 1.9	Th-232 Activity 8 04 8 04	0.6 7/12-14 Th-232 Uncertaint 1 0.5 1 0.4 0.5 4 0.5	Ru-224 Activit 8 0.1 8 1.5 5 2.0 4 1.5 9 1.	0.93 Ra-228 Uncortaint 0.7 0.8 0.7	75 J. 52 1.5 1.5 J. 58 1.5 1.70 1.6	Tetal Radiu Uncertaint 2 0.985349 0.865332 0.979081 2 0.985194
295 /erag mple iD 285 287 288 289 290	12/8/02 Je Total Sample Date 12/6/02 12/6/02 12/6/02 12/6/02	EPA Radium Sample Group EPA EPA EPA EPA EPA	62214 EE-FF/12-14 EPARE (Th-232+Ra-226) Cor Description \$2215 \$\$-UU/22-34 EPARE \$2216 \$\$-UU/22-34 EPARE \$2217 \$\$-UU/22-34 EPARE \$2218 \$\$-UU/22-34 EPARE	27 2 Centration Weight 20 9 21 7 20 4 20 5 20 6	6.16 On for : U-238 Activity 2.30 6.00 5.40 0.66 4.11	U-238 Uncurtainty 2.1 1.8 2.0 1.9	Th-232 Activity 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.6 7/12-14 Th-232 Uncertaint 1 0.5 1 0.4 0.5 4 0.5	R1-224 Activit 8 -0.15 8 1.5 5 2.0 4 1.5 9 1.	0.93 Ra-228 Uncortaint 0.7 0.8 0.7	75 J. 52 1.5 1.5 J. 58 1.5 1.70 1.6	Tetal Radius Uncertaint 2 0.988349 0.865332 0.979081 2 0.985194
295 /erag mple iD 286 287 288 289 290 /erag	12/8/02 Sample Date 12/8/02 12/6/02 12/6/02 12/6/02 Sample	Sample Group EPA EPA EPA EPA EPA EPA EPA Sumple	62214 EE-FF/12-14 EPANE (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPANE 52216 SS-UU/22-34 EPANE 52217 SS-UU/22-34 EPANE 52218 SS-UU/22-34 EPANE 52218 SS-UU/22-34 EPANE 62219 SS-UU/22-34 EPANE	27 2 Centration Weight 20 9 21 7 20 4 20 5 20 6	6.16 On for : U-238 Activity 2.36 6.06 5.41 0.66 4.11 on for :	U-238 Uncurtaints 2.1 1.8 9 2.0 3 1.9 2 2.2	EE-FI Th-232 Activity 8 04 7 00 2 00 \$\$S-U	0.6 7/12-14 Th-232 Uncertaint 1 0.5 1 0.5 4 0.5 4 0.5 4 0.5 4 0.5 4 0.5	Ra-224 Activit 8 1.5 5 2.0 4 1.5 9 1.	0.93 Ra-228 Uncortaint 0.7 0.8 1.36	pCi/g Total Radium Activity 75	Tetal Radius Uncertaint 2 0.968349 0.865332 0.979081 2 0.965194 6 1.051189
285 /erag mple ID 286 267 268 269 290 /erag	12/8/02 Sample Date 12/6/02 12/6/02 12/6/02 12/6/02 Sample Date Sample Date	Sample Group EPA EPA EPA EPA EPA EPA EPA EPA EPA Group	62214 EE-FF/12-14 EPARE (Th-232+Ra-226) Cor Description S2215 SS-UU/22-34 EPARE S2216 SS-UU/22-34 EPARE S2217 SS-UU/22-34 EPARE S2218 SS-UU/22-34 EPARE S2218 SS-UU/22-34 EPARE S2219 SS-UU/22-34 EPARE (Th-232+Ra-226) Col Description	Weight 20.9 21.7 20.4 20.5 20.6 Weight	6.16 Dri for : U-238 Activity 2.36 6.06 5.46 0.66 4.11 On for : U-238 Activity	U-238 Uncertaints 2.1 1.8 9 2.0 3 1.9 2 2.2	Th-232 Activity 5 0.0 \$5 - U Th-232 Activity Activity Activity	7h-232 Uncertaint 1 0.5 1 0.4 0.5 4	Ra-224 Activit 8 - 0.1 8 - 1.5 9 - 1. 7.59	0.93 Ra-228 Uncertaint 0.7 0.7 1.36 Ra-228 Uncertaint	pCi/g Total Radium Activity Activity 7. 1 0.9 1.5 2.1.1 1.5 2.1.5 1.5 3.1.5	Tetal Radius Uncertaint 2
295 /erag mple iD 286 287 288 289 290 /erag	12/8/02 Sample Date 12/6/02 12/6/02 12/6/02 12/6/02 Sample Date 12/6/02	Sample Group EPA EPA EPA EPA EPA Sample Group	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description \$2215 \$\$-UU/22-34 EPA#1 \$2216 \$\$-UU/22-34 EPA#2 \$2217 \$\$-UU/22-34 EPA#3 \$2218 \$\$-UU/22-34 EPA#4 \$2219 \$\$-UU/22-34 EPA#4 \$2219 \$\$-UU/22-34 EPA#4 \$2220 XX-18 EPA#1	Weight 20.9 21.7 20.4 20.5 20.6 Centration Weight 18.2	6.16 Dn for : U-238 Activity 2.36 6.06 5.46 0.66 4.11 on for : U-238 Activity 3.	U-238 Uncertaints 2.1 1.8 9 2.0 3 1.9 2 2.2 Uncertaint 4 2.8	Th-232 Activity SS-U Th-23 y Activity 22 -0.0	7h-232 Uncertaint Uncertaint Uncertaint Uncertaint U/32-34 Uncertaint U/32-34	Ra-224 Activit 8 1.5 5 2.0 4 1.5 9 1. 7.59	0.93 Ra-228 Uncertaint	pCi/g Total Radium Activity 75 1. 1 0.9 72 1.52 1.1 31 2.03 1.5 1.58 1.5 6 1.58 1.5 70 1.6 0.34 pCi/g Total Radium Activity Activity Activity 11 1.26 1.5	Total Radiu Uncertaint 0.968349 0.865332 0.979081 2 0.965194 6 1.051189
295 /erag mple iD 286 287 288 289 290 /erag mple iD 291 292	12/8/02 Sample Date 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02	Sample Group EPA EPA EPA EPA EPA EPA EPA EPA	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPA#1 52216 SS-UU/22-34 EPA#2 S2217 SS-UU/22-34 EPA#3 S2218 SS-UU/22-34 EPA#3 52218 SS-UU/22-34 EPA#4 62219 SS-UU/22-34 EPA#5 (Th-232+Ra-226) Cor Description \$2220 XX-18 EPA#1 \$2221 XX-18 EPA#2	Weight 20 9 21 7 20 4 20 5 20 6 Centration Weight 18 2 19 2	6.16 On for : U-238 Activity 2.36 6.06 5.46 0.66 4.11 on for : U-238 Activity 30.6	U-238 Uncertaint 1.8 2.0 3.1.9 2.22 Uncertaint 4.2.8 3.1.8	Th-232 Activity SS-U Th-23 Activity Act	7h-232 Uncertaint 1 0.5 1 0.5 1 0.5 1 0.5 1 0.5 2 0.5 4 0.5 4 0.5 4 0.5 4 0.5 4 0.6 6 0.6	Ra-224 Activit 8 - 0.15 8 - 1.5 9 - 1. 7.59 Ra-224 V Activit 6 - 1.2 5 - 0.7	0.93 Ra-228 Uncertaint	72 J. 52 1.1 72 J. 52 1.1 31 2.0 3 1.5 1.5 J. 58 1.5 87 J. 70 1.6 0. 34 pCi/g	Tetal Radius Uncertaint 2
295 /erag mple iD	12/8/02 Sample Date 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02	Sample Group EPA EPA EPA EPA EPA EPA EPA EPA EPA EPA	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPA#1 52216 SS-UU/22-34 EPA#3 52217 SS-UU/32-34 EPA#3 52218 SS-UU/32-34 EPA#4 62219 SS-UU/32-34 EPA#5 (Th-232+Ra-226) Cor Description \$2220 XX-18 EPA#1 52221 XX-18 EPA#3	Weight 20 9 21 7 20 4 20 5 20 8 Centration Weight 16 2 19 2 16	6.16 On for: U-238 Activity 2.36 6.06 5.46 0.66 4.11 on for: U-238 Activity 30.6	U-238 Uncertainty 2.4 Uncertainty 3.1.9 U-238 Uncertaint 4.2.8 3.1.8 7.2	Th-232 Activity 1 0.0 3 0.4 8 0.4 8 0.4 7 0.0 2 0.0 5S-U	7h-232 Uncertaint 0.5 1 0.4 0.5 4 0.5 4 0.5 4 0.5 4 0.5 4 0.6 7 0.5 4 0.5 4 0.5 4 0.5 6 0.5	Ra-224 Activit 8 -0.15 8 1.5 9 1.5 9 1.5 9 1.5 9 1.5 9 1.5 9 1.5 1.5 9	0.93 Ra-228 Uncertaint	72 J. 52 1.1 72 J. 52 1.1 73 J. 52 1.1 73 J. 52 1.1 74 Total Radium Activity 75 J. 70 1.6 76 J. 58 1.5 77 J. 70 1.6 78 Total Radium Activity 11 J. 26 1.7 74 1.8	Total Radiu Uncertaint 0.968349 0.865332 0.979081 2 0.965194 6 1.051189 1 Total Radiu Uncertain 5 1.345250 5 0.893084 9 1.012570
295 /erag mple iD 286 287 288 289 290 /erag mple iD 291 292	12/8/02 Sample Date 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02 12/6/02	Sample Group EPA EPA EPA EPA EPA EPA EPA EPA EPA EPA	62214 EE-FF/12-14 EPA#E (Th-232+Ra-226) Cor Description 62215 SS-UU/22-34 EPA#1 52216 SS-UU/22-34 EPA#2 S2217 SS-UU/22-34 EPA#3 S2218 SS-UU/22-34 EPA#3 52218 SS-UU/22-34 EPA#4 62219 SS-UU/22-34 EPA#5 (Th-232+Ra-226) Cor Description \$2220 XX-18 EPA#1 \$2221 XX-18 EPA#2	Weight 20 9 21 7 20 4 20 5 20 6 Centration Weight 18 2 19 2	6.16 On for : U-238 Activity 2.36 6.06 5.41 0.66 4.11 on for : U-238 Activity 3.60 1.7	U-238 Uncertainty 2.0 3.1.9 2.22 Uncertaint 4.2.8 3.1.8 7.2.1	Th-232 Activity 1 0.0 SS-U Th-233 7 0.0 SS-U Th-233 7 2ctivity 2 0.1 10.1 10.1 10.1 10.1 10.1 10.1 10.1	7h-232 Uncertaint 0.5 1 0.4 0.5 4 0.5 4 0.5 4 0.5 4 0.5 4 0.5 4 0.5 7 Uncertaint 3 0.6 8 0.9	Ra-224 Activit 8 -0.1: 8 1.5 9 1. 7. 5 9 Ra-224 V Activit 6 1.2 5 0.7	0.93 Ra-228 V Uncorrining 0.7 0.8 1.36 Ra-228 V Uncorrining 1.36	72 J. 52 1.1 31 2.0 3 1.5 1.5 8 1.5 87 J. 70 1.6 0. 34 pCi/g Total Radium Activity 72 J. 52 1.1 74 1.8 83 1.1	Tetal Radius Uncertaint 2

Sample	Sample	Sam ple	Description	Weight	U-239	U-231	Th-232	Th-232	Ra-226	Ra-228	Total Radium	Total Radium
IO	Date	Group	-	1	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Lincortainty
298	12/6/02	EPA	82225 JJ-00/8-11 EPA#1	19.3	1.29	2.38	0.39	0.66	1.11	0.93		1.134636506
297	12/6/02	EPA	S2226 JJ-00/8-11 EPA#2	19.8	6.7B	1.86	-1.2	0.48	3.57	0.73	3,572.37	0.873870418
298	12/6/02	EPA	S2227 JJ-00/8-11 EPA#3	19.7	1.87	1.76	0.55	0.47	1	0.68	1.55	and the second of the second
299	12/6/02	EPA	S2228 JJ-OO/8-11 EPA#4	19.3	1.96	2.27	0.85	0.62	0.98	0.87		
300	12/6/02	EPA	\$2229 JJ-OO/8-11 EPA#5	18.2	3.57	1.69	0.82	0.45	0.95	0.85	1.77	0.790569415
	-10 of 4-2 min War 14"		e i man derivatione accession de deservir de la la company de partie de la company de partie de la company de la c			~		~= ~	2.04	1 =	0.87	
Averag	e Total I	Radium	(Th-232+Ra-226) Con	centratio	on for ·		11-00	/8-11 =		1.80	pCi/g	l l
		(CONC. 1411	THE EDE THE ELOY CON	7007117 01170			2000		/			
Sample	Sample	Sam ple	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Re-226	Total Radium	Total Radium
ID ID	Date	Group	Description	144-1011	Activity		Activity	Uncertainty	Activity		Activity	Uncertainty
303	12/9/02		\$2230 JJ-00/11-13.5 EPA#1	18.9	3.27	Uncertainty 2.71	0.14	0.72				1.27314571
304	12/9/02		\$2231 JJ-00/11-13.5 EPA#2	18.3	and the same of the control forms and the same	2.09		0.72			A	THE RESIDENCE PROPERTY OF THE PARTY OF THE P
305	12/9/02	A	A		-1.86		dana and the contract of the	0.55			4	and the same of the same of the same of
306	12/9/02		\$2232 JJ-00/11-13.5 EPA#3	17.1 17.8	1.2 5.57		l	and the same of the same of the same of			والمستريد فرايد والمهابي منهود الكاسمين يوقع	w we man seemed as
307			S2233 JJ-00/11-13.5 EPA#4	- 1	كالمراسسين والمراجع المراجع المراجع والمراجع		the second second		4			0.851469318
307	12/9/02	EPA	S2234 JJ-00/11-13.5 EPA#5	17.8	3.31	1.79	0.63	1 - L			and a grown to the second construction of the se	0.001100011
								-	ド= こで		= 0.23	
Averag	e i otal	Radium	(Th-232+Ra-226) Cor	rcentration	on for:		17-OC)/11-13.5	=	1.87	pCi/g	
												,
Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-225	Total Radium	Total Radium
OI	Date	Group			Activity	Uncertainty	Activity			Uncertainty		Uncertainty
308	12/9/02		S2235 JJ-00/13.5-18 EPA#1	18.1	4.55							
309	12/9/02		\$2236 JJ-00/13,5-18 EPAK2	17.9	5.34						1.41	
310	12/9/02	I	S2237 JJ-OO/13.5-16 EPA#3	17.8	7.41			and the second real part of the second real part of			the first reaching the control of th	0.793221281
311	12/9/02	FPA	S2238 JJ-OO/13.5-16 EPAM4	18.2	0.91	2.71	0.88	i 0.73	1.39	1.0	7: 2.27	
240!			Provide a				. 					1.295299193
312	12/9/02		\$2239 JJ-00/13.5-16 EPA#5	17.2	4.39		. 		0.31	0.7	7] 1.21	
372			Provide a				. 		0.31	0.7	7) 1.21 6.54	1.295299193
anaria asarrii ng ngh	12/9/02	EPA	\$2239 JJ-00/13.5-16 EPA#5	17.2	4.39		0.9	0.5	= L 8	0.7	7] 1.21	1.295299193
anara anara ny rah	12/9/02	EPA	Provide a	17.2	4.39		0.9	0.54 "X	= L 8	0.7 5 ふ	7) 1.21 6.54	1.295299193
Averag	12/9/02 e Total	Radium	S2238 JJ-00/13 5-18 EPA#5 (Th-232+Re-226) Col	17.2	4.39 on for :	2.06	77-OC	0.54)/13.5-16	0.31 = L. 8	0.7 5 A= 1.80	7) 1.21 6.54	1.295299193 0.940478602
anaria asarrii ng ngh	12/9/02 8 Total Sample	EPA Radium Sample	S2238 JJ-00/13 5-18 EPA#5 (Th-232+Re-226) Col	17.2	4.39 on for : U-438	2.06	0.9 JJ-OC	0.54)/13.5-16	0.31 = (. 8 = Ra-236	0.7 5 A= 1.80	7 1.21 O. 54 pCi/g	1.295299193 0.940478602
Averag Semple ID	12/9/02 8 Total Sample Date	Radium Sample Group	\$2239 JJ-00/13.5-16 EPA#5 (Th-232+Re-226) Col Description	17.2 ncentratio	4.39 on for : U-238 Activity	2.06 U-238 Uncertainty	JJ-OC Th-232 Activity	0.5/)/13.5-16 Th-292 Uncertainty	0.31 = \(\)	0.7 5 2 1,80 Ra-226	7 1.21 O. 54 pCi/g Total Radium	1.295299193 0.940478602 Total Radium Uncertainty
Averag Semple ID 313	12/9/02 je Total Sample Date 12/9/02	Radium Sample Group EPA	S2238 JU-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description S2240 NN-PP/42-45 EPA#1	17.2 ncentration Weight	4.39 on for : U-238 Activity 1.54	U-238 Uncertainty 2.02	0.9 JJ-OC Th-232 Activity	0.5/)/13.5-16 Th-292 Uncortainty	0.31 = L. 8 =	1.80 1.80 1.00	7 121 O-54 pCi/g Total Radium Activity 8 2.0	1 295299193 0 940478602 Total Radium Uncertainty 3 0 93813845
Averagion in the second	12/9/02 9 Total Sample Date 12/9/02 12/9/02	Radium Sample Group EPA EPA	S2238 JJ-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description S2240 NN-PP/42-45 EPA#1 S2241 NN-PP/42-45 EPA#2	Weight 19.2	4.39 on for : U-238 Activity 1.54 3.78	2.06 U-298 Uncertainty 2.02 2.32	JJ-OC Th-232 Activity 3 1.76 2 1.16	0.54 7) 0/13.5-16 16-292 Uncontainty 0.5 0.6	Ra-226 Ra-226 Activity 5 0.1	1.80 1.80 Pla-228 Uncorredate 3 0.7 5 0.8	7 1.21 O. 54 pCi/g Total Radium Activity 6 2.00 7 1.3	1.295299193 0.940478602 Total Radium Uncertainty 3.0.93813845 1.06831643
Averag imple ID 313 314 315	12/9/02 9	Radium Sample Group EPA EPA EPA	\$2239 JJ-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description \$2240 NN-PP/42-45 EPA#1 \$2241 NN-PP/42-45 EPA#2 \$2242 NN-PP/42-45 EPA#3	Weight 19.2	4.38 on for : U-238 Activity 1.54 3.78 2.34	2.06 U-238 Uncertainty 2.02 2.33	JJ-OC Th-232 Activity 1.76 2 1.15 6 0.8	0.54 7)/13.5-16 11-222 Uncertainty 0.5 0.6	Ra-226 Activity 5 0.12 3 1.8	1.80 1.80 Fla-228 Uncortaint 3 0.7 5 0.8	7 1.21 O. 54 pCi/g Total Radium Activity 6 2.00 7 1.33	1.295299193 0.940478602 Total Radium Uncertainty 0.93613643 1.05831643
werag in in i	12/9/02 8 Total 8 Sample Data 12/9/02 12/9/02 12/9/02 12/9/02	Radium Sample Group EPA EPA EPA EPA	\$2239 JJ-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description \$2240 NN-PP/42-45 EPA#1 \$2241 NN-PP/42-45 EPA#2 \$2242 NN-PP/42-45 EPA#3 \$2243 NN-PP/42-45 EPA#4	17.2 Weight 19.2 18. 18.2 18.2	4.39 on for : U-238 Activity 1.54 3.78 2.34	2.06 U-298 Uncertainty 2.02 2.32 1.96	JJ-OC Th-232 Activity 1.76 1.15 6 0.81 5 1.21	0.54 0/13.5-16 11-292 Uncertainty 0.5 0.6 0.5 7 0.8	0.31 = [.8] = Ra-226 Activity D.12 0.11 3 1.8 9 0.5	1.80 1.80 Fla-228 Uncurtaint 3 0.7 5 0.8 7 0.7	7 1.21 pCi/g pCi/g Total Radium Activity 8 2.00 7 1.39 6 2.6	1.295299193 0.940478602 Total Radium Uncertainty 0.93613645 1.06831643 0.92655275 1.20673112
ample ID 313 314 315	12/9/02 9	Radium Sample Group EPA EPA EPA EPA	\$2239 JJ-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description \$2240 NN-PP/42-45 EPA#1 \$2241 NN-PP/42-45 EPA#2 \$2242 NN-PP/42-45 EPA#3	Weight 19.2	4.39 on for : U-238 Activity 1.54 3.78 2.34	2.06 U-298 Uncertainty 2.02 2.32 1.96	JJ-OC Th-232 Activity 1.76 1.15 6 0.81 5 1.21	0.54 0/13.5-16 11-292 Uncertainty 0.5 0.6 0.6 0.6 0.6	0.31 = \(\lambda \) = \(\lambda \) = \(\lambda \) Activity 5 \(\lambda \) 0.1 3 \(\lambda \) 1.8 9 \(\lambda \) 5.5 3 \(\lambda \) 1.8	1.80 Ra-228 / Uncartaint 3 0.7 5 0.8 7 0.7 1 0.9 8 0.9	7 1.21 pCi/g Total Radium Activity 6 2.0 7 1.3 6 2.6 1.7 2 2.5 2.5	1.295299193 0.940478602 Total Radium Uncertainty 0.93613645 1.05631643 0.92655275 1.20673112
Average ID 313 314 315 316 317	12/9/02 9 Total Sample Date 12/9/02 12/9/02 12/9/02 12/9/02 12/9/02	Bample Group EPA EPA EPA EPA EPA EPA	\$2239 JJ-OO/13.5-16 EPA#5 (Th-232+Re-226) Col Description \$2240 NN-PP/42-45 EPA#1 \$2241 NN-PP/42-45 EPA#2 \$2242 NN-PP/42-45 EPA#3 \$2243 NN-PP/42-45 EPA#4	17.2 Neight 19.2 18.2 18.2 18.2 17.9	4.39 On for : U-238 Activity 1.54 3.78 2.34 3.11 2.86	2.06 U-298 Uncertainty 2.02 2.32 1.96	JJ-OC Th-232 Activity 3 1.76 2 1.19 5 0.87 7 0.86	0.54 0/13.5-16 11-292 Uncertainty 0.5 0.6 0.6 0.6 0.6	0.31 = 2.8 = 2.8 Activity 	1.80 Ra-228 / Uncartaint 3 0.7 5 0.8 7 0.7 1 0.9 8 0.9	7 1.21 pCi/g pCi/g Total Radium Activity 8 2.00 7 1.39 6 2.6	1.295299193 0.940478602 Total Radium Uncertainty 0.93613643 1.05831643

Final 3 batches were sampled on 12/6/02 but were not analyzed until 12/9/02. GAH

Area Identification: NORTH SLEP AREA HH.5-KK	92-38
Date of Verification Survey: 11/29/02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time a survey indicated that all soils have been removed as require Criteria	nd date indicated above. The d by the Site Removal Action
Documents pertaining to this survey are attached for review an	d approval by the U.S. EPA.
Signed:	
Charles & Brown	
Charles Brown	(Print Name)
Records officer	(Print Title)
STS Consultants Solutions through Science & Engin	•
The attached Verification Survey documents were reviewed 12/3/02. The results of this surveriteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and resto	oration work at this excavation
Signed:	
Fredrick a. Micke	Date 12/3/02
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATOR	(Print Title)
For U.S. EPA Region V	

Area Ider	tification: NORTH	75.	
Date of V	erification Survey: _	11/29/02	
Time of V	erification Survey _	/300	am/pr
The above survey income Criteria	e-described excava dicated that all soil	ation was surveyed at the Is have been removed as	e time and date indicated above required by the Site Removal
Documen	ts pertaining to this	survey are attached for re	eview and approval by the U.S. E
Signed:			
	harles & B	Lown	Date 12/03/0
	11 - 10- 72		(Daint Name
	- MARES 131 DUN	<u> </u>	(Print Name
		*	
			(Print Title
The attac	Records Office hed Verification S 3/02	\$78 (Solutions through Scien Survey documents were n	(Print Title
The attac	hed Verification S 3/02 contained in the U	sta de Solutions through Scientiurvey documents were reconstructed in the results of the AO, have been met.	(Print Title
The attac	hed Verification S 3/02 contained in the U	sta de Solutions through Scientiurvey documents were reconstructed in the results of the AO, have been met.	(Print Title Consultants, Ltd. Ice & Engineering eviewed by U.S. EPA, Region this survey indicate that the verif
The attactive of the state of t	hed Verification S 3/02 contained in the U	sta de Solutions through Scientiurvey documents were not solve the results of the AO, have been met.	(Print Title Consultants, Ltd. Ice & Engineering eviewed by U.S. EPA, Region this survey indicate that the verif
The attactive of the state of t	hed Verification S 3/02 contained in the U	Solutions through Scientiurvey documents were in The results of the AO, have been met. Ited to commence backfill a	Consultants, Ltd. consultants,

		11 MILET DOVI I	117-19.5
Da	ate of Verification Survey:	11/29/02	
Ti	me of Verification Survey	1300	am/pm
Su	ne above-described excavation values indicated that all soils have iteria.	was surveyed at the time been removed as req	e and date indicated above. uired by the Site Removal A
Do	ocuments pertaining to this surve	y are attached for review	and approval by the U.S. EF
Si	gned:		
	Charles E Brown		Date /2/03/0
	Charles Brown		(Print Name)
	RECORDS officer		
	Ga	STS Consu	iltents, Ltd.
		Solutions through Science &	
CI	iteria as contained in the UAO, h	documents were revie . The results of this a	wed by U.S. EPA, Region survey indicate that the verificate
CI A	パターファイン IZ 3 0 Z iteria as contained in the UAO, huthorization is hereby granted to	documents were revie . The results of this a	wed by U.S. EPA, Region survey indicate that the verificate
CI A	iteria as contained in the UAO, huthorization is hereby granted to igned:	documents were revie . The results of this are been met. commence backfill and a	wed by U.S. EPA, Region survey indicate that the verific
CI A	iteria as contained in the UAO, huthorization is hereby granted to igned:	documents were revie The results of this ave been met. commence backfill and a	wed by U.S. EPA, Region survey indicate that the verific restoration work at this excav
CI A	iteria as contained in the UAO, huthorization is hereby granted to igned:	documents were revie The results of this rave been met. commence backfill and racke	wed by U.S. EPA, Region survey indicate that the verific restoration work at this excav

Area Identific	ation: <u>Nacth</u>	Stip Au DO	TT/19.5-22	
Date of Verific	cation Survey:	11/29/02		
Time of Verific	cation Survey	<u> 1300 </u>		sm/pm
The above-de survey indicated Criteria.	escriped excavati ted that all soils	ion was surveyed at have been removed	the time and dat as required by the	e indicated above ne Site Removal A
Documents pe	ertaining to this si	urvey are attached fo	or review and appr	oval by the U.S. Ef
Signed:				
Cha	la & Bro	<u> </u>		Date /2/03/02
Charl	es Brown			(Print Name)
ES		Solutions through	3TS Consultants, Ltd. Science & Engineering	
riteria as con	13 OZ Itained in the UA	vey documents were	of this survey indi	cate that the verific
Signed:	is nelepy granted	1 to commence back	IIII 2110 1651012(IOI)	WOIK At tills excavi
_	2. 1. 7 A	micke		1 1
	rearies a.	1 LUCKY		Date <u>/2/3/</u> c
		A MICK		
FF	REDRICK		<u> </u>	(Print Name

Area Identification: North Slip Axea KK-LL.5/32	36
Date of Verification Survey: 11/29/02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time are survey indicated that all soils have been removed as required Criteria.	nd date indicated above. The by the Site Removal Action
Documents pertaining to this survey are attached for review and	approval by the U.S. EPA.
Signed:	
Charles & Beaun	
Charles Brown	(Print Name)
Recorps officer	(Print Title)
\$7\$ Consultanta Solutions through Science & Engine	
	by U.S. EPA, Region V
The attached Verification Survey documents were reviewed 12/3/02. The results of this survey	by U.S. EPA, Region Verification
The attached Verification Survey documents were reviewed 12/3/02. The results of this surver criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration.	by U.S. EPA, Region Vey indicate that the verification work at this excavation
The attached Verification Survey documents were reviewed 12/3/02. The results of this surver criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration.	by U.S. EPA, Region Verification
The attached Verification Survey documents were reviewed 12/3/02. The results of this surver criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration.	by U.S. EPA, Region Vey indicate that the verification work at this excavation
The attached Verification Survey documents were reviewed 12/3/02. The results of this surver criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restorated: Treduck Q Mucka	by U.S. EPA, Region Vey indicate that the verification work at this excavation by Date 12/3/02

Area Identification: North Slip Area GG-HH-5/32-38
Date of Verification Survey: 1//29/02
Time of Verification Surveyam/pm
The above-described excavation was surveyed at the time and date indicated above. The survey indicated that all soils have been removed as required by the Site Removal Action Criteria.
Documents pertaining to this survey are attached for review and approval by the U.S. EPA.
Signed:
(halle & Brown Date 12/03/02
Charles Brown (Print Name)
Records Officer (Print Title)
STS Consultants, Ltd. Salutions through Science & Engineering
STE Consultants, Ltd.
Solutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region V o 12/3/02 The results of this survey indicate that the verificatio
Sdutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region Vo 12/3/02 The results of this survey indicate that the verificatio criteria as contained in the UAO, have been met.
Solutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region Vo 12/3/02
Solutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region V o 12/3/02 The results of this survey indicate that the verificatio criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration work at this excavation Signed:
Solutions through Science & Engineering The attached Verification Survey documents were reviewed by U.S. EPA, Region V o 12/3/02 The results of this survey indicate that the verificatio criteria as contained in the UAO, have been met. Authorization is hereby granted to commence backfill and restoration work at this excavation. Signed: Tredrick A. Mucke Date 12/3/02

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radiu
10	Date	Group	•		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertain
218	12/2/02	EPA	S2155 HH.5-KK/32-38 EPA#1	33.1	4.73	2.15	0.93	0.57	2.96	0.82	3 89.	0.998649
219,	12/2/02	EPA	S2156 HH.5-KK/32-38 EPA#2	33.4	9.37	2.61	0.71	0.87	2.48	0.96	3.19	1.170683
220	12/2/02	EPA	S2157 HH.5-KK/32-38 EPA#3	33.5	10.82	2.67	0.15	0.68	3.19	0.99	3.34	1.20104
221	12/2/02	EPA	S2158 HH 5-KK/32-38 EPA#4	31.7	5.45	2.38	0.83	0.64	2.39	0.91	3.22	1.11251
222	12/2/02	EPA	S2159 HH.5-KK/32-38 EPA#5	31.9	3.35	2.82	1.7	0.77		ta a series of the series of	2 92	1.32638
Averag	e Total	Radium	(Th-232+Ra-226) Con	centratio	on for :		HҢ.5-I	KK/32-38		3.31 3.31	ρ <u>ς = 0.3</u> γρCi/g) (q
							7		1 = 222		\ 	
Sam ple ID	Sample Date	Sample Group	Description	Weight	U-238 Activity	U-238 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Ra-228 Uncertainty	Total Radium Activity	Total Rad
223	12/2/02		S2160 LL5-MM/32-38 EPA#1	37.1	7.22			0.63		0.89		1.09041
224	12/2/02		S2161 LL 5-MM/32-38 EPA#2	34.6	4.41	2. 2 6	0.61	0.59	1.71	0.85	2.32	1 03469
225	12/2/02	EPA	S2162 LL.5-MM/32-38 EPA#3	36.3	1.57	2.25	0.65	0.61	2.23	0.86	2.88	1.05437
4-0			Secretary to the contract of t	· · · · · · · · · · · · ·		3.4		2 2 2 2	1.28	1.26	2.25.	A F 4000
226	12/2/02	EPA	S2163 LL.5-MM/32-38 EPA#4	36	8.44	J.4	0.97	0.89	!.∡o	, 1.20	· 2.23,	1.34202
227	12/2/02	EPA	S2163 LL.5-MM/32-38 EPA#6 S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor	37.1	5.74		0.23		2.44 V= 2.5	0.82		
Averag	12/2/02 e Total Sample	EPA Radium Sample	S2164 LL.5-MM/32-38 EPA#5	37.1	5.74 on for : U-238	2.16 U-238	0.23 LL.5-N	0.56 //M/32-38 Th-292	2.44 = 2.5 Ra-226	0.82 2.51	2.67 = 0. Z(o pCi/g	0.99297 Total Ra
Averag Sample	12/2/02 e Total Sample Date	EPA Radium Sample Group	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description	37.1 Icentration	5.74 on for : U-238 Activity	2.16 U-238 Uncertainty	0.23 LL.5-N Th-232 Activity	0.56 //M/32-38 Th-232 Uncertainty	2.44	0.82 2.51 Ra-226 Uncertainty	2.67 2.67 Ci/g Total Radium Activity	0.99297 Total Rac
Averag Sample 1D 228	12/2/02 e Total Sample Date 12/2/02	EPA Radium Sample Group EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 00-TT/17-19.5 EPA#1	Weight 26.1	5.74 on for : U-238 Activity 5.05	2.16 U-238 Uncertainty 2.07	0.23 LL.5-N Th-232 Activity	0.56 //M/32-38 Th-232 Uncertainty 0.53	2.44 = 2.5 3 Ra-226 Activity 1.46	0.82 2.51 Ra-226 Uncertainty	2.67 Ci/g Total Radium Activity 2.95	Total Rac Uncerta 0.92655
Averag Sample ID 228 229	12/2/02 e Total Sample Date 12/2/02 12/2/02	Radium Sample Group EPA EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 00-TT/17-19.5 EPA#1 S2166 00-TT/17-19.5 EPA#2	Weight 26.1	5.74 on for : U-238 Activity 5.05 0.15	U-238 Uncertainty 2.07 2.21	0.23 LL.5-N Th-232 Activity 1.49	0.56 //M/32-38 Th-232 Uncertainty 0.53	2.44 y = Z, S 3 Re-226 Activity 3 1.46 0.65	0.82 2.51 Ra-228 Uncertainty 0.76 0.85	2.67 Co. Zco pCi/g Total Radium Activity 2.95 1.96	Total Rai Uncerta 0.9265 1.0404
227 Averag Sample 1D 228 229 230	12/2/02 e Total Sample Date 12/2/02 12/2/02 12/2/02	EPA Radium Sample Group EPA EPA EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 00-TT/17-19.5 EPA#1 S2166 00-TT/17-19.5 EPA#2 S2167 00-TT/17-19.5 EPA#3	37.1 Weight 26.1 26.3 25.4	5.74 on for : U-238 Activity 5.05 0.15 -1.1	2.16 U-238 Uncertainty 2.07 2.21	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55	0.56 //M/32-36 //M/32-36 //M-232 // Uncertainty // 0.53 // 0.6	2.44	0.82 2.51 Ra-228 Uncertainty 0.76 0.85 0.97	2.67 = 0. Z(o pCi/g Total Radium Activity 2.95 1.96 2.16	Total Rac Uncerta 0.92655 1.04043
227 Averag Sample 1D 228 229 230 231	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02	EPA Sample Group EPA EPA EPA EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2166 OO-TT/17-19.5 EPA#3 S2166 OO-TT/17-19.5 EPA#3	37.1 Weight 26.1 26.3 25.4 26.9	5.74 on for : U-238 Activity 5.05 0.15 -1.1 7.07	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55	0.56 //M/32-38 Th-232 Uncertainty 0.53 0.6 0.6	2.44	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97	2.67 = 0. Z(o pCi/g Total Radium Activity 2.95 1.96 2.16	Total Rac Uncerta 0.92655 1.04043 1.1786
227 Averag Sample 10 228 229 230	12/2/02 e Total Sample Date 12/2/02 12/2/02 12/2/02	EPA Sample Group EPA EPA EPA EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 00-TT/17-19.5 EPA#1 S2166 00-TT/17-19.5 EPA#2 S2167 00-TT/17-19.5 EPA#3	37.1 Weight 26.1 26.3 25.4 26.9	5.74 on for : U-238 Activity 5.05 0.15 -1.1 7.07	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54	1.49 1.31 0.55	0.56 //M/32-38 Th-232 Uncertainty 0.53 0.67 0.66 0.55	2.44	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95	2.67 = 0. Z(o pCi/g Total Radium Activity 2.95 1.96 2.16	Total Rai Uncerta 0.9265 1.04043 1.1786
227 Averag Sample 1D 228 229 230 231 232	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02	EPA Sample Group EPA EPA EPA EPA EPA	S2164 LL.5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2166 OO-TT/17-19.5 EPA#3 S2166 OO-TT/17-19.5 EPA#3	37.1 Weight 26.1 26.3 25.4 26.9 25.3	5.74 On for : U-238 Activity 5.05 0.15 -1.1 7.07 2.36	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54	1.49 1.01	0.56 //M/32-38 Th-232 Uncertainty 0.53 0.67 0.66 0.55	2.44 X = 2.5 3 Ra-226 Activity 1.46 0.85 1.61 3.03 Z = 2.8	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95	2.67 = O. Z(o pCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04	1.04043 1.1786 1.15676
227 Averag Sample 1D 228 229 230 231 232 Averag	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02	EPA Radium Sample Group EPA EPA EPA EPA EPA EPA RAdium	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2166 OO-TT/17-19.5 EPA#3 S2168 OO-TT/17-19.5 EPA#3 S2169 OO-TT/17-19.5 EPA#3 (Th-232+Ra-226) Cor	Weight 26.1 26.3 25.4 26.9 25.3	5.74 On for : U-238 Activity 5.05 0.15 -1.1 7.07 2.36 On for :	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55 0.11 1.01	7h-232 Uncertainty 0.53 0.6 0.66 0.53	2.44	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95	2.67 - O. Z/o pCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 - O. SZ pCi/g	Total Rac Uncerta 0.92655 1.04043 1.1786 1.15676 0.92855
227 Averag Sample 1D 228 229 230 231 232	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02	EPA Sample Group EPA EPA EPA EPA EPA	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2166 OO-TT/17-19.5 EPA#3 S2168 OO-TT/17-19.5 EPA#3 S2169 OO-TT/17-19.5 EPA#3 (Th-232+Ra-226) Cor	37.1 Weight 26.1 26.3 25.4 26.9 25.3	5.74 On for : U-238 Activity 5.05 0.15 -1.1 7.07 2.36 On for : U-238	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54 1.94	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55 0.11 1.01	0.56 //M/32-38 Th-232 Uncertainty 0.53 0.6 0.66 0.53 T/17-19.	2.44	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.95 0.76 2.80	2.67 2.67 2.67 2.67 PCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 C. 82 pCi/g	Total Rac Uncerta 0.92655 1.04043 1.1786
227 Averag Sample 1D 228 229 230 231 232 Averag Sample	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 Pe Total	Sample Group EPA EPA EPA EPA EPA Sample Group	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2166 OO-TT/17-19.5 EPA#3 S2168 OO-TT/17-19.5 EPA#3 S2169 OO-TT/17-19.5 EPA#3 (Th-232+Ra-226) Cor	Weight 26.1 26.3 25.4 26.9 25.3	5.74 on for : U-238 Activity 5.05 0.15 -1.1 7.07 2.36 on for : U-238 Activity	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54 1.94	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55 0.11 0.0-T Th-232 Activity	0.56 //M/32-38 //M/32-38 // Uncertainty 0.53 0.6 0.67 0.66 7/17-19	2.44	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95 0.76 2.80	2.67 Co. Zco pCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 Co. 82 pCi/g	Total Rac Uncerta 0.92655 1.04043 1.1786 0.92656
227 Averag Sample 1D 228 230 231 232 Averag Sample 1D 233 234	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 Re Total Sample Date	Sample Group EPA EPA EPA EPA Sample Group	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#2 S2169 OO-TT/17-19.5 EPA#3 S2169 OO-TT/17-19.5 EPA#4 (S2169 OO-TT/17-19.5 EPA#4) S2169 OO-TT/17-19.5 EPA#5	Weight 26.1 26.3 25.4 26.9 25.3 ncentrati	5.74 On for: U-238 Activity 5.05 0.15 -1.1 7.07 2.36 On for: U-238 Activity 5.53	2.16 U-238 Uncertainty 2.07 2.21 2.44 2.54 1.94 U-238 Uncertainty 2.36	0.23 LL.5-N Th-232 Activity 1.49 1.31 0.55 0.11 00-T Th-232 Activity 3.0.27	0.56 //M/32-38 //M/32-38 // Uncertainty	2.44 X = 2.5 3 Ra-226 Activity 3 1.46 3 2.78 3 3.03 X = 2.8 5 = Ra-226 Activity 2 2.27	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95 0.76 2.80 Ra-226 Uncertainty 0.88	2.67 2.67 Ci/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 O. 82 pCi/g Total Radium Activity 2.54	Total Rac Uncerta 0.92655 1.04043 1.1786 0.92656
227 Averag Sample 1D 228 229 230 231 232 Averag Sample 1D 233	12/2/02 Pe Total Sample 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02	Sample Group EPA EPA EPA EPA Sample Group	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description \$2165 OO-TT/17-19.5 EPA#1 \$2166 OO-TT/17-19.5 EPA#3 \$2168 OO-TT/17-19.5 EPA#3 \$2169 OO-TT/17-19.5 EPA#4 \$2169 OO-TT/17-19.5 EPA#4 \$2169 OO-TT/17-19.5 EPA#5 (Th-232+Ra-226) Cor Description	37.1 Weight 26.1 26.3 25.4 26.9 25.3 ncentrati	5.74 On for : U-238 Activity 5.05 -1.1 7.07 2.36 On for : U-238 Activity 5.53 6.81	U-238 Uncertainty 2.07 2.24 2.54 1.94 U-238 Uncertainty 2.36	1.49 1.31 1.01 00-T Th-232 Activity Th-232 Activity 3 0.27	0.56 //M/32-38 Th-232 Uncertainty 0.53 0.67 0.66 0.70 Th-232 Uncertainty 0.67	2.44 X = 2.5 Ra-226 Activity 3 1.46 0.85 1.61 3 2.78 3 3.03 Z = 2.8 5 = Ra-226 Activity 2 2.27 6 1.02	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95 2.80 Ra-226 Uncertainty 7.0.88	2.67 2.67 Ci/g PCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 Co. 82 pCi/g Total Radium Activity 2.54 1.88	Total Ra- Uncerts 0.9265 1.0404 1.178 1.1567 0.9265 Total Ra- Uncerts 1.0846 1.3124 0.8905
227 Averag Sample 1D 228 229 230 231 232 Averag Sample 1D 233 234	12/2/02 Pe Total Sample Date 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02 12/2/02	Sample Group EPA EPA EPA EPA Sample Group EPA EPA	S2164 LL 5-MM/32-38 EPA#5 (Th-232+Ra-226) Cor Description S2165 OO-TT/17-19.5 EPA#1 S2166 OO-TT/17-19.5 EPA#3 S2168 OO-TT/17-19.5 EPA#4 S2169 OO-TT/17-19.5 EPA#4 S2169 OO-TT/17-19.5 EPA#4 S2171 OO-TT/19.5-22 EPA#1 S2171 OO-TT/19.5-22 EPA#1	37.1 Weight 26.1 26.3 25.4 26.9 25.3 ncentrati	5.74 On for : U-238 Activity 5.05 0.15 -1.1 7.07 2.36 On for : U-238 Activity 5.53 6.81 4.96	U-238 Uncertainty 2.07 2.21 2.44 2.54 1.94 Uncertainty 2.36 2.99 1.93	1.49 1.31 1.01 00-T Th-232 Activity 3.0.27 4.0.66 3.0.82	0.56 /// 17-232 Uncertainty 0.53 0.66 0.53 T/17-19. Th-232 Uncertainty 0.63 0.70 0.70	2.44 X = 2.5 R=-226 Activity 3 1.46 0.65 1.61 2.78 3 3.03 Z = 2.8 5 = Ra-226 Activity 2 2.27 5 1.02 1 1.3	0.82 2.51 Ra-226 Uncertainty 0.76 0.85 0.97 0.95 2.80 Ra-226 Uncertainty 0.83	2.67 2.67 C. Z.6 pCi/g Total Radium Activity 2.95 1.96 2.16 2.89 4.04 C. SZ pCi/g Total Radium Activity 2.54 1.88 2.13	Total Ras Uncerta 0.92655 1.04043 1.1786 1.15676 0.92655 Total Ras Uncerta 1.0846 1.3124

Sample	Sam ple	Sample	Description	Weight	U-238	บ-238	Th-232	Th-232	Ra-226	Ra-226	Tota Radium	Total Fadium
ID_	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
238	12/2/02	EPA	S2175 KK-LL.5/32-38 EPA#1	30.4	5.2	2.99	1.91	0.79	0.35	1.08	2.26	1.338095662
239	12/2/02	EPA	S2178 KK-LL 5/32-38 EPA#2	31.5	0.76	2.59	1.68	0.69	1.23	0.97	2.91	1.190378091
240	12/2/02	EPA	S2177 KK-LL.5/32-38 EPA#3	31.6	0.06	1.9	1.32	ี มี 51	1.02	0.72	2.34	0.88232647
241	12/2/02	EPA	S2178 KK-LL 5/32-38 EPA#4	31.2	-0.32	2.94	2.44	0.79	0.15	1.11	2.59	1.36242431
242	12/2/02	EPA	S2179 KK-LL 5/32-38 EPA#5	27.6	1.51	2.08	1.41	0.56	1 5	0.79	2.91	0.968349111
	· ,							X=24			31	
Averag	e Total I	Radiun	1 (Th-232+Ra-226) Con-	centrati	on for :		KK-LL	5/32-38	=	2.60	pCi/g	

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
#D	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
243	12/2/02	EPA	S2180 GG-HH.5/32-38 EPA#1	36.2	4.51	2.04	1.03	0.54	1.48	0.75	2.51	3.92417530
244	12/2/02	EPA	S2181 GG-HH.5/32-38 EPA#2	37 7	10.27	2.71	0.94	0.69	2.34	0.99	3.28	1.20873112
245	12/2/02	EPA	S2182 GG-HH 5/32-38 EPA#3	35.6	2.02	2.07	1.83	0.56	1.52	0.78	3.35	J.96020631
248	12/2/02	EPA	S2183 GG-HH.5/32-38 EPA#4	33.7	6.18	2.77	0.39	0.71	1.45	1.04	2.84	1.25924580
247	12/2/02	EPA	S2184 GG-HH 5/32-38 EPA#5	35.6	5.96	2.4	1.73	0.62	0.53	0.85	2.26	1.05209315
Avorac	a Tatal	, , Dadi	(Th 020 I Do 020) Com				CC N	JEMAN SE	元=		A= 0.65	
4verag	je Potali	Kadiun	n (Th-232+Ra-226) Cone	centralic	on tor :		GG-11	H.5/32-38)	2.65	pCi/g	

Note: All samples were obtained on 11/29/02 but were not analyzed until 12/2/02 Disregard sample dates listed above.

STS Consultants, Ltd.

750 Corporate Woods Parkway Vernon Hills, IL 60061 Phone: (847) 279-2500 Fax: (847) 279-2510



FACSIMILE TRANSMISSION

To:	Company Name:	Fax No.:
Verneta Simon	U.S.E.P.A. Region 5	(312) 353-917
Verneta Simon Fred Micke	11	"
:		FAX (312)946-832
From Charles Bra	<i></i>	Phone: (647) 344-6384
Re: EPA Contiamat		
For Review Plea	•	uested Ser Signature

HISPORTANTS: This faceimile is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and essempt from disclosure under applicable law. If the resource of this tecermile is not the intended recipient, you are hereby notified that any dissemination, distribution, or copyring of this communication is strictly prohibited. If you have received this communication in error, please notify us transdutely by telephone and return this faceimile to us at the above address we the United States Postal Service. Thank you.

11/15/3

Area Identification: South SCIP AREA	C.E. 9-10.5
Date of Verification Survey: 11/15/02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at to survey indicated that all soils have been removed a Criteria.	he time and date indicated above. The as required by the Site Removal Action
Documents pertaining to this survey are attached for	review and approval by the U.S. EPA.
Signed:	
Charles Brown 12-0	Date 11/18/02
Charles E. Brown Reces	(Print Name)
RECORDS officer	(Print Title)
Solutions through Sc	S Consultants, Ltd. ience & Engineering
The attached Verification Survey documents were The results of criteria as contained in the UAO, have been met.	reviewed by U.S. EPA, Region V of this survey indicate that the verification
Authorization is hereby granted to commence backfil	l and restoration work at this excavation
Signed:	
Fredrick a. Micke	Date 11/19/02
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATOR	(Print Title)
For U.S. EPA Region V	

Area Identification: SOUTH SLIP AREA E-	k, 1-13
Date of Verification Survey: 11/15/02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time survey indicated that all soils have been removed as require Criteria.	
Documents pertaining to this survey are attached for review a	nd approval by the U.S. EPA.
Signed:	
Charles & Bron	Date 11/18/02
Charles E. Brown	(Print Name)
RECORDS Officer	(Print Title)
STS Consultan Solutions through Science & Engl	··-•
The attached Verification Survey documents were reviewe The results of this surcriteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and res	toration work at this excavatio
Signed:	1 /
Fredrick a. Micke	Date0 2
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATOR	(Print Title)
For U.S. EPA Region V	v

Area Identification: NORTH SLIP AREA KI	K-00, 41-44
1 1	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time survey indicated that all soils have been removed as required.	
Documents pertaining to this survey are attached for review	v and approval by the U.S. EPA.
Signed:	
Charles Brown	Date 11/18/02
Charles E Brow	(Print Name)
RECORDS Offician	(Print Title)
STS Consu Solutions through Science &	· · · · · ·
The attached Verification Survey documents were review 19, 2002. The results of this criteria as contained in the UAO, have been met.	
Authorization is hereby granted to commence backfill and i	restoration work at this excavation
Signed:	/ /
Fredrick a. Micke	Date 11/19/02
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATOR	(Print Title)
For U.S. EPA Region V	•

Area Identification: KK - MM 5, 54 - 56.5 No	RTH SLIP AREA
Date of Verification Survey: 11/15/02	
Time of Verification Survey	am/pm
The above-described excavation was surveyed at the time and of survey indicated that all soils have been removed as required by Criteria.	
Documents pertaining to this survey are attached for review and ap	proval by the U.S. EPA.
Signed:	
Charles & Brown	Date
Charles E. Brown	(Print Name)
RECORDS OFFICER	
STS Consultants, Ltd Solutions through Science & Engineering	
The attached Verification Survey documents were reviewed by 19, 2002. The results of this survey i criteria as contained in the UAO, have been met.	ndicate that the verification
Authorization is hereby granted to commence backfill and restorati	on work at this excavation
Signed: - Fredrick a. Micke	Date 11/19/02
FREDRICK A. MICKE	(Print Name)
ON-SCENE COORDINATOR	(Print Title)
For U.S. EPA Region V	

Area Identification:	IONTH SLIP AREA K	R-55, 43-45
	vey: 11/15/02	
time of Verification Sur	vey/500	am/pm
	excavation was surveyed at the tir Il soils have been removed as rec	
Documents pertaining t	o this survey are attached for review	w and approval by the U.S. EPA.
Signed:		
Charl	2 Bran	Date 11/18/02
Charle	8 E. Brown	(Print Name)
	s offician	(Print Title)
53	STS Cone Solutions through Science &	sultants, Ltd. L Engineering
now 19, 200	ion Survey documents were revi The results of this the UAO, have been met.	lewed by U.S. EPA, Region V of survey indicate that the verification
	granted to commence backfill and	restoration work at this excavation
Signed:		Date 11/19/02
Fredrick	a. Micke	Date 11/19/02
FREDR	ICK A. MICKE	(Print Name)
ON-SCE	NE COORDINATO)R (Print Title)
For U.S. EPA Region \	V	

Nutrani Gamma Spec Report-Lakeshore East Project

n ple	Sample	Semple	Description	Weight	U-238	U-288	Th-232	Th-232	Ra-226	Ra-226	Total Radium	Total Radium
OI.	Date	Group	·		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
138	11/15/02	EPA	S2001 E-1/3-5 EPA#1	29.3	1.86	2.21	1.46	0.59	0.28	0.83	1.74	1 018331969
139	11/15/02	EPA	S2092 E-1/3-5 EPA#2	28.5	2.54	1.67	1.24	0.45	1.88	0.64	3.12	0.7823682
140	11/15/02	EPA	S2093 E-1/3-5 EPA#3	28.9	8.16	2.2	0.18	0.58	2.84	0.82		0.99297532
141	11/15/02	EPA	S2094 E-1/3-5 EPA#4	32	4.58	2.48	1.04	0.65		0.94		1.14284732
142	11/15/02	EPA	S2095 E-1/3-5 EPA#5	30	8.43	2.62	0.59	0.69		0.99	3.13	1,20673112
		-			_		又= さ.		a	= 0.61	-01/-	
verag	e lotal	Radium	(Th-232+Ra-226) C	oncentratio	on for :		E-1/3-5) =		2.80	pCi/g	- سال سیان این دار د
									<u> </u>		Tradal Badlesmi	2 4-1 D. O
mple	Sample	Sem ple	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Ra-226	Total Radium Activity	Total Radium Uncertainty
10	Date	Group			Activity	Uncertainty	Activity		Activity			0.83234608
143	11/15/02		S2096 E-I/5-7 EPA#1	31.9	3.69		1.31	0.48	4	k		0.88814413
144	11/15/02		S2097 E-1/5-7 EPA#2	33.4	5.78	1.97	A				1	1.03730419
145	11/15/02		S2098 E-1/5-7 EPA#3	32.1	5.59	2.23		0.58	S			0.79630396
148	11/15/02		S2099 E-I/5-7 EPA#4	29.2	4.99	1.76					and the second s	1.34033577
147	11/15/02	EPA	S2100 E-1/5-7 EPA#5	33.1	4.24	2.92	0.8 V=3		2.54	L	3.34	1.34033311
									_ / .			
	A						1		T 22 344		Takal Dardham	Year-I Bardina
mple ID	Sample Date	Sample	Description	Weight	U-238 Activity	U-236 Uncertainty	Th-232 Activity	Th-232 Uncertainty	Ra-226 Activity	Re-226 Uncertainty	Total Radium Activity	Yotal Radium Uncertainty
- 4	•	Group	Description \$2101 E-J/7-9 EPA#1	Weight 27.7	U-238 Activity	U-236 Uncertainty 1,91	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
ID	Date	Group EPA			Activity	Uncertainty	Activity 1.13	Uncertainty 0.51	Activity 1.8	Uncertainty 0.72	Activity 2.73	Uncertainty 0.8823264 0.99624294
150	Date 11/18/02	Group EPA EPA	\$2101 E-J/7-9 EPA#1	27.7	Activity 3.7 2.31	Uncertainty 1.91 2.15	Activity 1.13 1.67	Uncertainty 0.5 0.56	Activity 1.6 1.72	Uncertainty 0.72 0.81 0.8	Activity 2.73 3.39 3.43	Uncertainty 0.8823264 0.99624294 0.97062438
150 151	Date 11/18/02 11/18/02	Group EPA EPA EPA	S2101 E-J/7-9 EPA#1 S2102 E-J/7-9 EPA#2 S2103 E-J/7-9 EPA#3	27.7 26.5 25.7	Activity 3.7	Uncertainty 1.91 2.15 2.05	Activity 1.13 1.67 0.19	Uncertainty 0.5 0.56 0.56	1.6 1.72 3.24	Uncertainty 0.72 0.81 0.8	Activity 2.73 3.39 3.43	Uncertainty 0.8823264 0.99624294 0.97062438
150 151 152	Date 11/18/02 11/18/02 11/18/02	Group EPA EPA EPA EPA	\$2101 E-J/7-9 EPA#1 \$2102 E-J/7-9 EPA#2	27.7 26.5	Activity 3.7 2.31 3.49	1.91 2.15 2.05 2.57	1.13 1.67 0.19	Uncertainty 0.5 0.56 0.56 0.66	Activity 1.6 1.72 3.24 3 0.25	Uncertainty 0.72 0.81 0.8	Activity 2.73 3.39 3.43 2.06	Uncertainty 0.8823264 0.99624294 0.97082436 1.13225436
150 151 152 153 154	Date 11/18/02 11/18/02 11/18/02 11/18/02	Group EPA EPA EPA EPA EPA	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5	27.7 26.5 25.7 27.1 26.2	Activity 3.7 2.31 3.49 4.68 5.23	1.91 2.15 2.05 2.57	1.13 1.67 0.19 1.81 1.12	0.56 0.56 0.56 0.66 0.6	Activity 1.6 1.72 3.24 3 0.25 5 1.67	Uncertainty 0.77 0.89 0.8 0.89 0.70 0.77	Activity 2 2.73 3.38 3.43 2 2.06 1 2.79	Uncertainty 0.8823264 0.99624294 0.97082436 1.13225436
150 151 152 153 154	Date 11/18/02 11/18/02 11/18/02 11/18/02	Group EPA EPA EPA EPA EPA	S2101 E-J/7-9 EPAH S2102 E-J/7-9 EPAH2 S2103 E-J/7-9 EPAH3 S2104 E-J/7-9 EPAH4	27.7 26.5 25.7 27.1 26.2	Activity 3.7 2.31 3.49 4.68 5.23	1.91 2.15 2.05 2.57	Activity 1.13 1.67 0.19 1.81	0.56 0.56 0.56 0.66 0.6	Activity 1.6 1.72 3.24 3 0.25 5 1.67	Uncertainty 0.72 0.84 0.8 0.92 0.97	Activity 2.73 3.39 3.43 2.06	Uncertainty 0.8823264 0.99624294 0.97082436 1.13225436
150 151 152 153 154 Verac	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02	Group EPA EPA EPA EPA EPA EPA	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5	27.7 26.5 25.7 27.1 28.2	Activity 3.7 2.31 3.49 4.68 5.23 on for :	Uncertainty 1.91 2.15 2.05 2.57 1.9	1.13 1.67 0.19 1.81 1.12 7. = E-J/7-	0.5 0.56 0.56 0.66 0.6 2.28 9 =	Activity 1.6 1.72 3.24 3.0.25 1.67	Uncertainty 0.77 0.81 0.6 0.97 0.75 0.56 2.88	Activity 2.73 3.39 3.43 2.08 i 2.79 pCi/g	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225436 0.8683893
150 151 152 153 154 Verac	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample	Group EPA EPA EPA EPA EPA Radium	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5	27.7 26.5 25.7 27.1 26.2	Activity 3.7 2.31 3.49 4.68 5.23 on for :	Uncertainty 1.91 2.15 2.05 2.57 1.9	1.13 1.67 0.19 1.81 1.12 7 = E-J/7-	Uncertainty 0.5 0.56 0.66 0.8 2.88 9 =	Activity 1.6 1.72 3.24 3.0.25 1.67	Uncertainty 0.77 0.81 0.6 0.97 0.75 0.56 2.88	Activity 2 2.73 3.39 3 3.43 2 2.06 1 2.79 PCi/g	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225436 0.8883893
150 151 152 153 154 /erac	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample Date	Group EPA EPA EPA EPA EPA Radium Semple Group	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5 (Th-232+Ra-226) C	27.7 26.5 25.7 27.1 28.2 Oncentration	Activity 3.7 2.31 3.49 4.68 5.23 On for:	Uncertainty 1.91 2.15 2.05 2.57 1.9	1.13 1.67 0.19 1.81 1.12 7. = E-J/7-	Uncertainty	Activity 1.6 1.72 3.24 3.0.25 1.67	0.72 0.81 0.6 0.97 0.7 0.56 2.88	Activity 2 2.73 3.39 3.43 2 2.06 1 2.79	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225436 0.8883893
150 150 151 152 153 154 /erac	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample Date 11/18/02	Group EPA EPA EPA EPA EPA Radium Semple Group	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5 (Th-232+Ra-226) C Description	27.7 26.5 25.7 27.1 26.2 oncentration	Activity 3.7 2.31 3.49 4.68 5.23 On for: U-238 Activity 4.72	Uncertainty 1.91 2.15 2.05 2.57 1.9	1.13 1.67 0.19 1.81 1.12 72 = E-J/7- Th-232 Activity	Uncertainty 0.5 0.56 0.66 0.6 2.88 9 = Th-282 Uncertainty 0.6	Activity 1.6 1.72 3.24 3.0.25 1.67	Uncertainty 0.72 0.81 0.6 0.97 0.70 0.56 2.88	Activity 2 2.73 3.39 3 3.43 2 2.06 1 2.79	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225436 0.8883893 Total Radium Uncertainty 1.178897
150 151 152 153 154 /erac /ple (D 155	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample Date 11/18/02	Group EPA EPA EPA EPA Semple Group EPA	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5 (Th-232+Re-226) C Description \$2108 I-K/9-13 EPAH1 \$2107 I-K/9-13 EPAH2	27.7 26.5 25.7 27.1 26.2 concentration	Activity 3.7 2.31 3.49 4.68 5.23 on for: U-238 Activity 4.72 1.57	Uncertainty 1.91 2.15 2.05 2.57 1.9 U-288 Uncertainty 2.52 2.32	1.13 1.67 0.19 1.81 1.12 7 = E-J/7- Th-232 Activity 2 0.94	Uncertainty 0.5 0.56 0.66 0.8 2.88 9 = Th-222 Uncertainty 0.6	Activity 1.6 1.72 3.24 3.0.25 1.67	Uncertainty 0.72 0.81 0.6 0.97 0.70 0.56 2.88 Re-226 Uncertainty 0.99	Activity 2 2.73 3.39 3 3.43 2 2.06 1 2.79 PCi/g Total Radium Activity 7 3.69 9 3.85	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225438 0.8883893 Total Radium Uncertainty 1.178897 1.09859000
150 151 152 153 154 /erac /erac /ple 10 155 155	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample Date 11/18/02 11/18/02	Group EPA EPA EPA EPA EPA Semple Group EPA EPA	S2101 E-J/7-9 EPAH S2102 E-J/7-9 EPAH2 S2103 E-J/7-9 EPAH4 S2104 E-J/7-9 EPAH4 S2105 E-J/7-9 EPAH5 (Th-232+Rs-226) C Description S2108 I-K/9-13 EPAH1 S2107 I-K/9-13 EPAH2 S2108 I-K/9-13 EPAH3	27.7 26.5 25.7 27.1 26.2 concentration Weight 28.8 27.6 29.6	Activity 3.7 2.31 3.49 4.68 5.23 On for: U-238 Activity 4.72 1.57 5.66	Uncertainty 1.91 2.15 2.05 2.57 1.5 U-238 Uncertainty 2.52 2.32	1.13 1.67 0.19 1.81 1.12 7. = E-J/7- Th-232 Activity 0.94	Uncertainty 0.5 0.56 0.66 0.8 2.88 9 = Th-282 Uncertainty 0.6 0.6	Activity 1.6 1.72 3.24 3.0.25 1.67	Uncertainty 0.72 0.81 0.8 0.92 0.70 0.56 2.88 Re-226 Uncertainty 0.9 0.9	Activity 2 2.73 3.39 3 3.43 2 2.06 1 2.79 PCi/g Total Radium Activity 7 3.69 9 3.85 7 3.96	Uncertainty 0.8823284 0.99624294 0.97082436 1.13225436 0.8883893 Total Radium Uncertainty 1.178897 1.0985900 1.1962023
150 150 151 152 153 154 (eraç mple 10 155	Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 Sample Date 11/18/02 11/18/02 11/18/02	Group EPA EPA EPA EPA Radium Semple Group EPA EPA	\$2101 E-J/7-9 EPAH \$2102 E-J/7-9 EPAH2 \$2103 E-J/7-9 EPAH3 \$2104 E-J/7-9 EPAH4 \$2105 E-J/7-9 EPAH5 (Th-232+Re-226) C Description \$2108 I-K/9-13 EPAH1 \$2107 I-K/9-13 EPAH2	27.7 26.5 25.7 27.1 26.2 concentration	Activity 3.7 2.31 3.49 4.68 5.23 on for: U-238 Activity 4.72 1.57	Uncertainty 1.91 2.15 2.05 2.57 1.5 U-288 Uncertainty 2.52 2.32 2.66 3.21	1.13 1.67 0.19 1.81 1.12 7. = E-J/7- Th-232 Activity 0.94	Uncertainty 0.5 0.56 0.66 0.8 2.58 9 = Th-232 Uncertainty 0.6 0.6 0.8	Activity 1.6 1.72 3.24 3.0.25 1.67 0.5 1.67 2.71 3.2.83 7.1.55	Uncertainty 0.72 0.84 0.8 0.92 0.7 0.56 2.88 Re-226 Uncertainty 0.9 0.9 1.1	Activity 2 2.73 3.39 3 3.43 2 2.06 1 2.79 PCi/g Total Radium Activity 7 3.69 9 3.85 7 3.96 3 2.84	Uncertainty 0.8823264 0.9962429 0.97082431 1.13225431 0.8683893 Total Radium Uncertainty 1.178897 1.0985900 1.1962023 1.3903237

	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Rp-226	Total Radium	Total Radium
ID	Date	Group		1	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
			S2111 KK-MM.5/54-56.5							_		
160	11/18/02		EPA#1	32.9	4.46	2.3	0.45	0.62	2.13	0.88	2.58	1.07647573
,			S2112 KK-MM 5/54-56.5	1								
181,	11/18/02	EPA	EPA#2	32	3.11	2.14	0.85	0.57	1.21	0.82	2.06	0.99864908
		!	S2113 KK-MM 5/54-58.5			200 2000 2000 2000						
162	11/18/02	EPA	EPA#3	31.8	7.39	1.83	1.01	0.48	-0.03	0.65	0.98	0.79630396
			S2114 KK-MM.5/54-58.5	1	ه دهمده بیدن پول د ارتحصت خبر ه	الومد بيساد د	, , , , , , , , ,					
163	11/18/02	EPA	EPA#4	29.7	3.13	2 49	0.7	0,68	1.7	0.96	2.4	1,17643529
1	The state of the s		S2115 KK-MM.5/54-56.5				0	a magazina a manana a			7 37	
184	11/18/02	EPA	EPA#5	31.4	7.86	2.58	-0.58	0.65	2.32			1.16764720
			elle an interest in analysis of an asset (see) on A tribution in Injustic spaces asset assets and in	, m. Tr. of the Art and a supplemental the A	and a transfer on the state of the state of	عمىد	OPOL	neg.	又=1.9	16 A=	٥.63	
verag	e Total	Radium	(Th-232+Ra-226) Con	centratio	on for :		KK-MN	<i>1</i> .5/34-5	6.5 =	1.96	pCi/g	
											7	المستنب الروح المسيورين
am pie	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-252	Re-226	Ra-224	Total Radium	Total Redium
10	Date	Group	Description .	And Bur	Activity	Uncertainty	Activity		Activity	1	Activity	Uncertainty
165	11/18/02		S2118 E-I/1-3 EPA#1	28	6.58							0.95441081
166	11/18/02		S2117 E-V1-3 EPAN2	28.5	5.39	And the second second				· · · · · · · · · · · · · · · · · · ·	THE REAL PROPERTY AND PARTY ASSESSED.	
	11/18/02		S2118 E-V1-3 EPA#3	29.1	1.88				A	and the second section is a second section of		
167								Land to the second second			militaria de comunicación de como constituido de constituido de constituido de constituido de constituido de c	
167		EDA	!Q?145 E !/4 ? EDA##	1 2001							•	
168	11/18/02		S2119 E-V1-3 EPA#4 S2120 F-V1-3 EPA#5	28.9	3.33 4.78			hat common and and	all and the second	<u></u>	2.58	
			S2119 E-I/1-3 EPAI/4 S2120 E-I/1-3 EPAI/5	28.9	3.33 4.78	de la compression della compre		0.8	0.88	1.1	2.58	1.41823834
168 169	11/18/02 11/18/02	EPA	\$2120 E-I/1-3 EPA#5	28	4.78		1.7	$\sqrt{z} = 3.6$	0.88	0.37		
168 169	11/18/02 11/18/02	EPA		28	4.78			$\sqrt{z} = 3.6$	0.88	1.1	2.58 pCi/g	
168 169 \verag	11/18/02 11/18/02 e Total	EPA R adi un	\$2120 E-I/1-3 EPA#5 1 (Th-232+Re-226) Cor	29 ncentration	4.78 on for :	3.17	1.7 E-V1-	0.83 V = 3.6 3 =	0.88 B Q =	0.37 3.08	pCi/g	1,41823834
168 169 Verag	11/18/02 11/18/02 • Total Sample	EPA Radium Sample	\$2120 E-I/1-3 EPA#5 1 (Th-232+Re-226) Cor	28	4.78 on for : U-238	3.17 U-238	1.7 E-1/1-232	0.8: \(\vec{\chi} = 3.0 \) Th-292	0.88 Q =	0.37 3.08	pCi/g	1.41623834
168 169 Verag	11/18/02 11/18/02 • Total Sample Date	EPA Radiun Sample Group	\$2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description	29 ncentration	4.78 on for : U-238 Activity	3.17	1.7 E-1/1- Th-232 Activity	0.8: V = 3.0 3 = Th-232 Uncertainty	0.86 8 Q =	3 1.11 0.37 3.08	pCi/g Total Radium Activity	1.41823834 Total Radium Uncertainty
168 169 Verag	11/18/02 11/18/02 • Total Sample Date 11/18/02	EPA Radiun Semple Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1	29 ncentration Weight 32.6	U-238 Activity	U-236 Uncortainty 2.30	1.7 E-1/1- Th-232 Activity 0.57	0.85 V = 3.03 3 = Th-292 Uncertainty 0.85	Re-226 Activity 2 1.3	3 1.11 0.37 3.08 Ra-228 Uncertainty 8 0.8	PCi/g Total Radium Activity 8; 1.95	Total Rediant Uncertainty 1.0764757
168 169 Verag ample ID 170 171	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02	EPA Radium Sample Group EPA EPA	\$2120 E-I/1-3 EPA#5 (Th-232+Ra-226) Cor Description \$2121 C-E/0.5-10.5 EPA#1 \$2122 C-E/9.5-10.5 EPA#2	Weight 32.6 34.4	4.76 on for : U-238 Activity 4.85 6.09	U-238 Uncortainty 2.35 3.07	1.7 E-1/1- Th-232 Activity 0.57	0.85 V = 3.03 3 = Th-292 Uncertainty 0.86 0.	Rs-220 Activity 2 1.3	3 1.11 0.37 3.08 Re-228 Uncertaints 8 0.8 2 1.1	PCi/g Total Radium Activity 8 1.98	1.41623834 Total Redien Uncertainty 1.0764757 1.3926952
168 169 Verag ID 170 171 172	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02	EPA Radium Sample Group EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3	28 ncentration Weight 32.6 34.4 31.5	4.78 On for : U-238 Activity 4.85 6.09 5.53	U-238 Uncertainty 2,38 3,07 2,58	1.7 E-I/1~ Th-232 Activity 0.57 1.39 3.0.91	0.8: V = 3.0 3 = Th-232 Uncertainty 0.8: 0.6:	Re-220 Activity 2 1.3 8 1.2	3 1.11 0.37 3.08 Ra-228 Uncertaints 8 0.8 2 1.1 2 0.9	PCi/g Total Radium Activity 8 1.98 4 2.61 6 2.43	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243
168 169 Verag ample ID 170 171 172 173	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02	EPA Radium Sample Group EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4	28 ncentration Weight 32.6 34.4 31.5 32.7	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56	3.17 U-238 Uncortainty 2.38 3.07 2.58	1.7 E-I/1~ Fh-232 Activity 0.57 1.39 3 0.91 3 1.23	0.8: V = 3.0 3 = Th-292 Uncertaints 0.8: 0.9: 0.6: 0.6:	Re-226 Activity 2 1.33 8 1.2 9 1.5	3 1.11 0.37 3.08 Ra-228 Uncertaints 8 0.8 2 1.1 2 0.9 6 0.9	PCi/g Total Radium Activity 8 1.98 4 2.61 6 2.43 1 2.00	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196
168 169 Verag ID 170 171 172	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02	EPA Radium Sample Group EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3	28 ncentration Weight 32.6 34.4 31.5	4.78 On for : U-238 Activity 4.85 6.09 5.53	U-236 U-236 Uncertainty 2,35 3,07 2,56 2,45	Th-232 Activity 9 0.57 7 1.39 9 0.91 3 1.23 5 1.5	0.8: 7h-292 Uncertainty 0.6: 0.6: 0.8: 0.8:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	Ra-228 V Uncertaints 8 0.8 2 1 1 2 0.9 6 0.9 2 0.9	PCi/g Total Radium Activity 8 1.95 4 2.61 6 2.43 1 2.06 9 2.77	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196
168 169 Verag ID 170 171 172 173 174	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02	EPA Sample Group EPA EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5	29 Centration Weight 32.6 34.4 31.5 32.7 31.8	4.78 on for : U-238 Activity 4.85 6.09 5.53 4.56	3.17 U-238 Uncortainty 2.38 3.07 2.58	1.7 E-I/1- Th-232 Activity 0.57 7 1.39 3 0.91 3 1.23	0.8: Th-232 Uncertainty 0.8: 0.6: 0.6: 0.6: 0.8: 0.8:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	3 1.11 0.37 3.08 Ra-228 / Uncertainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0.1 1 = 0.33	pCi/g Total Radium Activity 8 198 4 2.61 6 2.43 1 2.06 9 2.73	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196
168 169 Verag ID 170 171 172 173 174	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02	EPA Sample Group EPA EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4	29 Centration Weight 32.6 34.4 31.5 32.7 31.8	4.78 on for : U-238 Activity 4.85 6.09 5.53 4.56	3.17 U-238 Uncortainty 2.38 3.07 2.58	1.7 E-I/1- Th-232 Activity 0.57 7 1.39 3 0.91 3 1.23	0.8: 7h-292 Uncertainty 0.6: 0.6: 0.8: 0.8:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	Ra-228 V Uncertaints 8 0.8 2 1 1 2 0.9 6 0.9 2 0.9	PCi/g Total Radium Activity 8 1.95 4 2.61 6 2.43 1 2.06 9 2.77	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196
168 169 Verag Ib 170 171 172 173 174 Verag	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02	EPA Sample Group EPA EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5	29 Centration Weight 32.6 34.4 31.5 32.7 31.8	4.78 on for : U-238 Activity 4.85 6.09 5.53 4.56	3.17 U-238 Uncortainty 2.38 3.07 2.58	1.7 E-I/1- Th-232 Activity 0.57 7 1.39 3 0.91 3 1.23	0.8: Th-232 Uncertainty 0.8: 0.6: 0.6: 0.6: 0.8: 0.8:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	3 1.11 0.37 3.08 Ra-228 Uncertaints 8 0.8 2 1.1 2 0.6 6 0.9 2 0. 1 = 0.33 2.36	pCi/g Total Radium Activity 8 1.98 4 2.61 6 2.43 1 2.06 9 2.77	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900
168 169 Verag ID 170 171 172 173 174 Verag	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02	Radium Sample Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor	29 Centration Weight 32.6 34.4 31.5 32.7 31.8	4.78 on for : U-238 Activity 4.85 6.09 5.53 4.56	3.17 U-238 Uncortainty 2.38 3.07 2.58	1.7 E-I/1- Th-232 Activity 0.57 7 1.39 3 0.91 3 1.23	0.8: Th-232 Uncertainty 0.8: 0.6: 0.6: 0.6: 0.8: 0.8:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	Ra-228 V Uncertaints 8 0.8 2 11 2 0.9 6 0.9 2 0.1 2 2.36	PCi/g Total Radium Activity 8 1.94 4 2.61 6 2.43 1 2.00 9 2.73 PCi/g	1.41623834 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900
168 169 Verag ID 170 171 172 173 174 Verag	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02	EPA Sample Group EPA EPA EPA EPA EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor	Weight 32.6 34.4 31.5 32.7 31.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 on for :	U-236 U-236 Uncertainty 2.35 3.07 2.66 2.45 2.34	Th-232 Activity 9 0.57 1.39 3 1.23 C-E/9	0.8: \(\vec{7} = 3.0 \) 3 = Th-292 Uncertainty 0.8: 0. 0.6 0.8 0.8 0.8 7 = 2.3: .5-10.5	Ra-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2	3 1.11 0.37 3.08 Rs-228 Uncertaints 8 0.8 2 1.1 2 0.9 6 0.9 2 0.1 1 = 0.33 2.36	PCi/g Total Radium Activity 8 1.95 6 2.45 1 2.06 9 2.77 PCi/g Total Radium Activity	1.41623834 Total Redium Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900
168 169 Verag ID 170 171 172 173 174 Verag	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02 E Total Sample Date 11/18/02	Sample Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor	Weight 32.6 34.4 31.5 32.7 31.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 On for :	U-236 Uncertainty 2.30 3.07 2.50 2.41 2.31	Th-232 Activity 0.57 1.39 3.1.23 5.1.5 C-E/9 Th-232 Activity 5.0.11	0.8: Th-232 Uncertainty 0.6: 0.6: 0.8: 7-232 Uncertainty 0.5:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2 6 Activity 7 4.2	3 1.11 0.37 3.08 Ra-228 Uncertainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 Ra-228 y Uncertainty	pCi/g Total Radium Activity 8 1.94 2.61 6 2.43 1 2.00 9 2.77 pCi/g Total Radium Activity 4 4.3	1.41623834 Total Radium Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Radium Uncertainty 1.0151354
168 169 Verag ID 170 171 172 173 174 Verag	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02	Semple Group EPA EPA EPA EPA EPA Semple Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor Description	Weight 32.6 34.4 31.5 32.7 31.8 Centration	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 On for : U-238 Activity	U-236 Uncertainty 2.30 3.07 2.50 2.41 2.31	Th-232 Activity 0.57 1.39 3.1.23 5.1.5 C-E/9 Th-232 Activity 5.0.11	0.8: Th-232 Uncertainty 0.6: 0.6: 0.8: 7-232 Uncertainty 0.5:	Re-226 Activity 2 1.3 8 1.2 9 1.5 4 0.8 3 1.2 Activity Activity 7 4.2	3 1.11 0.37 3.08 Ra-228 Uncertainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 Ra-228 y Uncertainty 1 0.8 2 0.8	pCi/g Total Radium Activity 8 198 4 2.61 6 2.43 1 2.00 9 2.73 pCi/g Total Radium Activity 4 4.3	1.41623634 Total Redian Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Redian Uncertainty 1.0151354 1.0580170
168 169 Verage ID 170 171 172 173 174 Verage (D)	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02 E Total Sample Date 11/18/02	Semple Group EPA EPA EPA EPA EPA Semple Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/9.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor Description S2126 KK-00/41-44 EPA#1	Weight 32.6 34.4 31.5 32.7 31.8 Centration Weight 35.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 On for : U-238 Activity 7.06	U-236 Uncortainty 2.30 3.07 2.56 2.45 2.30 Uncartainty 2.22 2.2	Th-232 Activity 0.57 1.39 3 1.23 1.5 1.5 C-E/9 Th-232 Activity 5 0.11	0.8: \(\times = 3.0 \) Th-232 Uncertainty 0.8: 0.6 0.6 0.6 0.8 \(\times = 2.3 \) .5-10.5: Th-232 Uncertainty 0.5 0.6	Re-226 Activity 1.3 8 1.2 9 1.5 4 0.8 3 1.2 Activity Activity 4 2 3 0.	3 1.11 0.37 3.08 Ra-228 Uncortainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 Ra-228 y Uncortainty 1 0.8 2 0.8 0.8 0.8 0.8 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	pCi/g Total Radium Activity 8 198 4 2.61 6 2.43 1 2.06 9 2.73 pCi/g Total Radium Activity 4 4.3 15 1.9 16 2.8	1.41623834 Total Redium Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Redium Uncertainty 1.0151354 1.0580170 1.1764352
168 169 Veragemple ID 170 171 172 173 174 Verage ID 175 176	11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02	Sample Group EPA EPA EPA EPA EPA EPA EPA EPA EPA EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor Description S2128 KK-00/41-44 EPA#1 S2127 KK-00/41-44 EPA#1	29 ncentration Weight 32.6 34.4 31.5 32.7 31.8 ncentration Weight 35.8 34.4 35.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 on for : U-238 Activity 7.08 -0.12	U-236 Uncortainty 2.30 3.07 2.56 2.45 2.30 Uncortainty 2.22 2.22	Th-232 Activity 0.57 1.39 3.1.23 C-E/9 Th-232 Activity 5.0.11 8.1.76 6.1.15	0.8: \(\times = 3.0 \) Th-232 Uncertainty 0.8: 0.6 0.6 0.6 0.8 \(\times = 2.3 \) .5-10.5 Th-232 Uncertainty 0.8 0.6 0.6 0.6 0.6 0.6	Ra-226 Activity 1.3 8 1.2 8 1.5 4 0.8 3 1.2 7 4.2 7 4.2 3 0.8 8 1.5	3 1.11 0.37 3.08 Ra-228 (Uncortainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 (Uncortainty 1 0.8 2 0.8 3 0.8 6 0.9 1 0.9 2 0.9 1 0.8 1 0.8 2 0.8 2 0.9 2 0.9 2 0.9 3 0.8 4 0.8 6 0.9 2 0.9 6 0.9 7 0.8 8 0.8 9 0.8	pCi/g Total Radium Activity 8 198 4 2.61 6 2.43 1 2.00 9 2.73 pCi/g Total Radium Activity 4 4.3 15 1.9 16 2.6	1.41623834 Total Redisor Uncartality 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Redisor Uncartains 1.0151354 1.0580170 1.1764352 1.1440276
168 169 Veragemple ID 170 171 172 173 174 Veragemple ID 175 176	11/18/02 11/18/02 11/18/02 e Total Sample Date 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02	Sample Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#2 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor Description S2126 KK-00/41-44 EPA#1 S2127 KK-00/41-44 EPA#2 S2128 KK-00/41-44 EPA#3	29 ncentration Weight 32.6 34.4 31.5 32.7 31.8 ncentration Weight 35.8 36.8 36.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 On for : U-238 Activity 7.08 -0.12	U-236 Uncortainty 2.30 3.07 2.56 2.45 2.32 Uncartainty 2.22 2.2	Th-232 Activity 0.57 1.39 3 0.91 3 1.23 C-E/9 Th-232 Activity 5 0.11 8 1.76 6 1.15 5 2.06	0.8: Th-232 Uncertainty 0.8: 0.6: 0.6: 0.6: 71-232 Uncertainty 0.5: 0.6:	Ra-226 Activity 1.3 8 1.2 8 1.5 4 0.8 3 1.2 7 4.2 7 4.2 3 0.8 8 1.5 8 0.3	3 1.11 0.37 3.08 Ra-228 Uncertainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 Uncertainty 1 0.8 1 0.8 1 0.8 1 0.8 2 0.8 2 0.9 2 0.9 2 0.9 2 0.9 3 0.8 4 0.8 6 0.9 2 0.9 6 0.9 6 0.9 7 0.8 8 0.8 8 0.8 9 0	pCi/g Total Radium Activity 8 198 4 2.61 6 2.43 1 2.06 9 2.77 pCi/g Total Radium Activity 4 4.3 15 1.9 16 2.8	1.4162383 Total Radium Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Radium Uncertainty 1.0151357 1.0580170 1.1764352
168 169 Verag ID 170 171 172 173 174 Verag ID 175 176 177	11/18/02 11/18/02 11/18/02 e Total Sample 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02 11/18/02	Sample Group EPA	S2120 E-I/1-3 EPA#5 (Th-232+Re-226) Cor Description S2121 C-E/0.5-10.5 EPA#1 S2122 C-E/9.5-10.5 EPA#2 S2123 C-E/9.5-10.5 EPA#3 S2124 C-E/9.5-10.5 EPA#4 S2125 C-E/9.5-10.5 EPA#5 (Th-232+Re-226) Cor Description S2128 KK-00/41-44 EPA#1 S2127 KK-00/41-44 EPA#3 S2128 KK-00/41-44 EPA#4 S2128 KK-00/41-44 EPA#4	29 ncentration Weight 32.6 34.4 31.5 32.7 31.8 ncentration Weight 35.8 34.4 35.8	4.78 On for : U-238 Activity 4.85 6.09 5.53 4.56 2.86 on for : U-238 Activity 7.08 -0.12	U-236 Uncortainty 2.30 3.07 2.56 2.45 2.32 Uncartainty 2.22 2.2	Th-232 Activity 0.57 1.39 3 0.91 3 1.23 C-E/9 Th-232 Activity 5 0.11 8 1.76 6 1.15 5 2.06	0.8: Th-232 Uncertainty 0.8: 0.6: 0.6: 0.6: 71-232 Uncertainty 0.5: 0.6:	Ra-226 Activity 1.3 8 1.2 8 1.5 4 0.8 3 1.2 7 4.2 7 4.2 3 0.8 8 1.5 8 0.3	3 1.11 0.37 3.08 Ra-228 Uncertainty 8 0.8 2 1.1 2 0.9 6 0.9 2 0. 1 = 0.33 2.36 Uncertainty 1 0.8 1 0.8 1 0.8 1 0.8 2 0.8 2 0.9 2 0.9 2 0.9 2 0.9 3 0.8 4 0.8 6 0.9 2 0.9 6 0.9 6 0.9 7 0.8 8 0.8 8 0.8 9 0	pCi/g Total Radium Activity 8 1.98	1.4162383 Total Radius Uncertainty 1.0764757 1.3926952 1.182243 1.1125196 1.0985900 Total Radius Uncertainty 1.0151356 1.0580177 1.1764357

Sample	Sample	Sample	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-226	Re-226	Total Radium	Total Radium
ID	Date	Group	·		Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
180	11/18/02	EPA	S2131 RR-SS/43-45 EPA#1	33.4	7.94	2.24	-0.13	0.57	2.57	0.65	2.67 -2.54	
181	11/18/02	EPA	S2132 RR-SS/43-45 EPA/2	33.3	4.46	2.25	0.07	0.58	2.58	0.86	2.65	1.03730419
182	11/18/02	EPA	S2133 RR-SS/43-45 EPA#3	31.5	0.76	2.15	1.52	0.58	-0.17	0.81	1.35	0.99624294
183	11/18/02	EPA	S2134 RR-SS/43-45 EPA#4	32.3	5.92	1.78	0.37	0.48	1.27	0.66	1.64	0.80448741
184	11/18/02	EPA	S2135 RR-SS/43-45 EPA#5	33.6	1.48	1.99	0.35	0.52	1.61	0.76		0.92088915
		da ar ma , v. man c. 1 =	Augustus var kriiksi, talaita kiriigar varyuus ise riigis sussa, sarsakan karis (vys., se	بالاحسانية وسارا بالد	er andreada and the state of th	140	LOZ	Mea	V=2	03 4	=0.56	2
Averar	ie Total i	Dadium	(Th-232+Ra-226) Cor	trati	240		3/43-45 =		2.03	pCi/g		
JA OI GR	o i orani	varinin	((UI 101 .		スレーシ	34-CHK	-	2.00	pong	

Note: Final 7 EPA batches were sampled on 11/15/02, but were not analyzed until 11/18/02. GAH

STS Consultants, Ltd.

750 Corporate Woods Parkway Vernon Hills, IL 60061 Phone: (847) 279-2500 FAX: (847) 279-2510



FACSIMILE TRANSMISSION

То:	Company Name:	Fax No.:
VELVETA STMON	USEPA	(312) 886-36
		x:(312)946-83
From: Charles Bases		ne: (947) 344- 6 3
Re: LAKE SHOW EAST		
Eor Review Please C	• •	☐ For Signatur

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Area Identification: $F = J = 29 - 35$	
Date of Verification Survey: 10/18/02	
Time of Verification Survey	
The above-described excavation was surveyed survey indicated that all soils have been remove Criteria.	at the time and date indicated above. The ad as required by the Site Removal Action
Documents pertaining to this survey are attached	for review and approval by the U.S. EPA.
Signed:	
Charles Brown	Date 10/19/12
Charles E. Beaux	(Print Name)
RECORDS OFFICER	(Print Title)
Solutions through	9TS Consultants, Ltd. ph Science & Engineering
The attached Verification Survey documents w \(\begin{align*} \omega \o	vere reviewed by U.S. EPA, Region V oits of this survey indicate that the verification
Authorization is hereby granted to commence ba	ckfill and restoration work at this excavation
Signed? Nameda Simon	Date <u>/0//8/c</u> 2_
Veeneta Simon	
On-Scene Cookdinature	
Earlis EDA Design V	

Nutrani Gamma Spec Report- Lakes ... East Project

21 Jorth Columbus Drive, Chicago, IL

Exclusion Zone Confirmatory Samples for October 18, 2002

Sample	Sample	Sam ple	Description	Welght	U-238	U-231	Th-232	Th-232	Ra-226	Ra-126	Total Radium	Total Radium
ID.	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
53	10/18/02	EPA	82026 F-H/32-35 EPA#1	28.2	9.09	2.76	0.08	0.71	3.11	1.04	3.19	1.259245806
54	10/18/02	EPA	62027 F-H/32-35 EPA#2	31.4	2.03	2.28	1.09	0.6	2.92	0.87	4.01	1.056834897
55	10/18/02	EPA	52026 F-H/32-35 EPA#3	30.9	6.18	2.04	0.59	0.53	2.77	0.77		0.9347727
56	10/18/02	EPA	S2029 F-H/32-35 EPA#4	26.9	2.98	1.88	1.53	05	2.59	0.72	4.12	
57	10/18/02	EPA	\$2030 F-H/32-35 EPA#5	28.7	2.24	1.86	0.33	05	4.37	0.74	4.7	0.893084542

Average Total Radium (Th-232+Ra-226) Concentration for :

F-H.5/32-35 =

3.88

pCi/g

Sample	8ample	Sample	Description	Weight	U-238	U-236	Th-232	Th-232	Re-226	Ra-226	Total Radium	fotal Radium
ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
58	10/18/02	EPA	\$2031 H-1/32-35 EPA#1	34.5	0.72	1.92	1.71	0.52	0.45	0.72	2.16	0.888*44132
59	10/18/02	EPA	S2032 H/32-35 EPAI/2	33.2	1.62	1.79	0.57	0.49	2.68	0.7	3.25	0.854458893
60	10/18/02	EPA	S2033 H/32-35 EPAK3	35.4	5,91	2.63	Ō	0.68	2.87	1.01	2.87	1.217579568
61	10/18/02	EPA	S2034 H/32-35 EPA#4	31.7	5.32	2.17	0.27	0.56	2.28	0.81	2.55	0.984733466
62	10/18/02	EPA	S2035 H/32-35 EPA#5	34	0.25	2.48	0.79	0.67	2.57	0.96	3.36	1.170683561

Average Total Radium (Th-232+Ra-226) Concentration for :

H-J/32-35 =

2.84

pCi/g

Sample	Sam ple	Sumple	Description	Weight	U-238	U-238	Th-232	Th-232	Ra-228	Ra-226	Total Radium	Total Radium
ID	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty
53	10/18/02	EPA	S2036 H-J/29-32 EPA#1	29.5	3.31	1.98	0.8	0.52	2.54	0.76	3.34	0.920869155
84	10/18/02	EPA	S2037 H-J/29-32 EPA#2	30.5	3.94	2.85	1.59	0.75	1.24	1.05	2.83	1.29034879
36	10/18/02	EPA	S2098 H-J/29-32 EPA//3	30.6	3.13	2.37	0.95	0.61	1.27	0.66	2.22	1.070747403
36	10/18/02	EPA	S2039 H-J/29-32 EPAM	30.2	-0.37	2	1.34	0.54	2.14	0.79	3.48	D.948683299
57	10/18/02	EPA	S2040 H-J/29-32 EPA45	28.7	1	2.33	0.38	0.84	3.39	0.93	3.77	1.128937554

Average Total Radium (Th-232+Ra-226) Concentration for :

H-J/29-32 =

3.13

pCVg

Sem pie	Sample	Sample	Description	Weight	U-238	U-210	11-232	Th-232	Ra-226	Ra-226	Total Radium	Total Fladium
OI	Date	Group			Activity	Uncertainty	Activity	Uncertainty	Activity	Uncertainty	Activity	Uncestainty
60	10/18/32	EFA	82041 F-F/29-32 EPA#1	27.2	-2	2.45	1.8	0.68	0.76	0.97	2.58	1.18480964
69	10/18/02	EFA	82042 F-1-/29-32 EPA#2	26.1	2.17	2.36	1.27	0.63	2.81	0.91	4.08	
70	10/18/02	EPA	S2043 F-F/29-32 EPA#3	24.9	1.78	2.04	1.37	0.56	1.82	0.78	3, 19	
71	10/18/02	EPA	82044 F-H/29-32 EPA#4	26	1.28	1.85	0.70	0.5	1.93	0.72	2.69	0.87658428
72	10/18/02	EPA	92045 F-H/29-32 EPA#5	26.6	4.08	2.01	0.64	0.52	2.56	0.76	3.1	0.920869155

Average Total Radium (Th-232+Ra-226) Concentration for :

F-H/29-32 =

3.12

pCi/g